IoT Ecosystem Brand White Paper

The Standards and Definition of IoT Ecosystem Brand

September 20th, 2020
There are times when it is wise for corporations to take a pregnant pause. To look around and see if the very things that have made them successful are the right ingredients to secure success in the future.

As a diligent student of corporate history and business transformation myself it is often easy to spot, with the magic of hindsight, the point at which a successful company started to fail. From then on, it’s often a long, undignified journey of management denial and subsequent terminal decline with the destruction of much shareholder value along the way.

Corporations have a bad habit of thinking they will last forever - that’s how they are built and structured.

Consumers and customers have a very different mindset as viewed through the lens of their changing attitudes and bonds towards the brand and their purchase decision behaviour.

When a business is fast growing and successful it is doubly difficult to look at itself, look into the future and see something very different to others. And it’s even harder to completely change itself with to a new philosophy and radical model of operation to deliver the change well before it is needed.

So, I have the utmost respect for Haier under the leadership of Chairman Ruimin Zhang and President Yunjie Zhou for doing just that. Envisioning, creating and implementing the Rendanheyi business model for an IoT ecosystem age business within Haier.

I am convinced that the ecosystem; ecosystem brands and ecosystem centric organisations will play a vitally important role in business growth in the years to come. Frameworks that encourage entrepreneurism and put the customer at the center of the organisation to create lasting lifetime value right across a vibrant ecosystem.

But here is the issue that has been troubling me and many others for some time.

Our financial accounting models, performance metrics, calculations of economic profit, ROCE and many of the established metrics that analysts plug into their spreadsheets to uncover hidden value, are all part of an old model - a model not designed for an ecosystem era.

They struggle to extract onto the balance sheet the true value the ecosystem is creating, the value to the firm, it’s ecosystem partners and their respective brands.

It’s bit like navigating using old maps or uncalibrated sat nav.

This is one of the many reasons that I warmly welcome this white paper. I am sure that we will look back at its publication as a seminal contribution to uncovering the true value of ecosystem brands. It will, I hope, be a catalyst for rich debate and development in the best traditions of academic and business research.

We would all do well to read and consider this. To respond to this significant contribution in the development of the ecosystem as a recognisable value creator - especially as we enter an IoT world and New days and New ways for the world and the “business of business”.

Foreword

David Roth
CEO The Store WPP,
Chairman BrandZ™
and BAV Group,
Global
Brand is the trend-setter and barometer of business competition. In the traditional industrial era, enterprises are either global brands or OEMs of global brands; in the mobile Internet era, enterprises either own platform brands or are owned by platform brands; in the IoT era, enterprises either transform into ecosystem brand leaders or become partners of ecosystem brands.

No matter what era we are in, the brand guarantees premium. The premium of product brands lies in quality; that of platform brands lies in traffic; and that of ecosystem brands lies in experience iteration.

Over the last decade, we have witnessed the disruptive change brought by platform brands to product brands. However, the platform brands and product brands were found unchanged in nature, both of which dealt with transactions in the Zero-sum Game. With demise of the traffic dividend, for-trading platform brands may not always be able to survive from unpredictable recession even if they’ve once enjoyed rapid prosperity, which is a natural order. As James Carse said, finite games are played in order to be won, but infinite games’ object is ensuring the continuation of play. In this sense, ecosystem brands are playing an infinite game in the IoT era.

When I first proposed the creation of ecosystem brands three years ago, there was no relevant experience I can draw for reference, nor traditional economic theories and management theories can be applied. In communication with W. Brian Arthur, the coiner of complexity economics and Danah Zohar, founder of quantum management theory, they were supportive to the concept. They can hardly believe that such a concept, which was thought to be mere theoretical exploration, was turned into reality in Haier. Last year, BrandZ rated Haier the only IoT ecosystem brand among Top 100 Most Valuable Global Brands, marking that ecosystem brands become a new trend-setter in commercial practice. This White Paper on IoT Ecosystem Brand compiled by experts from Kantar and Said Business School, University of Oxford pushed ecosystem brands from a trend-setter to an operable and replicable system.

In an ecosystem brand system, there is no boundary or endpoint. As ecosystem partners are flooding into the system, continuous system iteration will finally take place as a result of common innovation and optimization. From my experience of ecosystem brand building, I would summarize it as “three-less”:

**Seamless experience, boundless ecosystem and auto-sensing payment.**

**Seamless experience** means integrated interaction between users and partners, i.e., iterated experience for life-long users. **Boundless ecosystem** indicates border-free integration of products and industries, more to the point, “products would be replaced by scenarios and industries would be covered by ecosystems”. In **auto-sensing payment**, “things” in the IoT can be automatically ordered, paid and delivered, i.e., a comprehensive barrier-free payment experience based on disintermediation.

Suppose that product brands arise out of product economy, and platform brands arise out of platform economy, then ecosystem brands are the inevitable result of community economy, sharing economy and experience economy, which are exactly the key characteristics of the IoT economy.
Competition in the IoT economy is thus elevated, and game-players were changed from enterprises and industry chains to various business ecosystems. James Moore who initiated the theory of business ecosystems casts eyes to Haier’s ecosystem brand innovation. Haier’s ecosystem model is inspired by his theory, and Haier, in return, inspired him to write a new business ecosystem book based on his investigation research and his findings about the epoch-making and leading business ecosystem from Haier’s practice.

IoT will never be the end because new progress of science and technology is speeding up exponentially. Only by upholding the idea of people value maximization and unleashing the infinite potential of all through the Rendanheyi model can the value of science and technology be realized. In this respect, I agree with James Moore that institutional innovation is the “meta-technology” in all technical innovation because people are the only factor capable of generating assets appreciation.
# Content

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PREFACE</strong></td>
<td>The Future Has Arrived</td>
<td>06</td>
</tr>
<tr>
<td><strong>CHAPTER ONE</strong></td>
<td>The Inevitability of IoT Ecosystem Brand in the IoT Era</td>
<td>08</td>
</tr>
<tr>
<td>1.1</td>
<td>General Features of the IoT Era</td>
<td>10</td>
</tr>
<tr>
<td>1.2</td>
<td>Economic Features of the IoT Era</td>
<td>12</td>
</tr>
<tr>
<td>1.3</td>
<td>Brand Paradigm in the IoT Era</td>
<td>16</td>
</tr>
<tr>
<td><strong>CHAPTER TWO</strong></td>
<td>Standards and Definition of IoT Ecosystem Brand</td>
<td>18</td>
</tr>
<tr>
<td>2.1</td>
<td>The Core Differences between Definitions for Traditional and Ecosystem Brand</td>
<td>20</td>
</tr>
<tr>
<td>2.2</td>
<td>Standards and Definition of IoT Ecosystem Brand</td>
<td>22</td>
</tr>
<tr>
<td>2.3</td>
<td>Developing a Model of IoT Ecosystem Brand</td>
<td>59</td>
</tr>
<tr>
<td><strong>CHAPTER THREE</strong></td>
<td>The Impact of IoT Ecosystem Brand</td>
<td>62</td>
</tr>
<tr>
<td>3.1</td>
<td>Organizational Reinvention of IoT Ecosystem Brand</td>
<td>64</td>
</tr>
<tr>
<td>3.2</td>
<td>Social Responsibility of IoT Ecosystem Brand</td>
<td>74</td>
</tr>
<tr>
<td><strong>CONCLUSION</strong></td>
<td></td>
<td>76</td>
</tr>
<tr>
<td><strong>APPENDIX</strong></td>
<td></td>
<td>78</td>
</tr>
</tbody>
</table>
PREFACE
The Future Has Arrived
We now live in a world where technology is ubiquitous. When you wake up in the morning, your coffee has already been brewed in the kitchen. When the refrigerator detects that you’re running low on eggs, it automatically places an order directly from the farm. When your vehicle detects broken wine bottles on the road, it automatically circumvents them. At night when nobody is on duty, the factory and its equipment are still operating tirelessly, with efficiency unhindered. Indeed, the beauty of this new world can be found in every tiny facet of life.

According to the Mobile Economy 2020 report by the Global System for Mobile Communications Association (GSMA), IoT connections in the world reached 12 billion in 2019 and is expected to increase to 24.6 billion by 2025. Over the next few years, global IoT revenue is expected to grow from $343 billion (about 2.4 trillion yuan) in 2019 to $1.1 trillion (about 7.7 trillion yuan) in 2025.1

The world is accelerating at an unprecedented pace. Compared with the roughly 5 billion devices that have access to the mobile Internet, IoT connection is much larger in magnitude, involving everything from wearable devices, smart homes, self-driving cars, to interconnected factories and smart cities.

This new wave led by the IoT will fundamentally change the way we live and reconstruct the global industrial economy. In history, every industrial revolution has fostered a batch of leading enterprises of the times and changed global economic patterns. The first industrial revolution in the 1860s turned Britain into the "workshop of the world". The electricity era heralded by the second industrial evolution empowered the likes of Siemens, Mercedes-Benz, Ford, General Electric and other world-renowned companies, placing the United States and Germany at the center of the world. The third industrial revolution, which featured the rise of computer and information technology, saw the likes of Intel, IBM, Microsoft, Dell and other American enterprises achieve success, in turn allowing the US to further cement its leadership position in the global economy. Today, the arrival of the IoT era will undoubtedly unveil a new power shift in global economic patterns.

In order to gain an advantage over the global IoT competition, enterprises must not only pursue innovation in technology and products, but also build a unique 'moat' for themselves through model innovation. With the speed of technology and product iteration becoming increasingly faster, the "blue ocean" is being rapidly transformed into a "red ocean", i.e. homogeneous competition, making it difficult for enterprises to rely solely on the innovation of technology and products to maintain their competitiveness. In contrast, the leaders of model innovation can often build a higher moat for themselves by reshaping various relationships, such as the relationship between enterprises and users/partners (brand paradigm) and the relationship between enterprises and employees (organizational form), as well as changing the means of creating and delivering value. This approach will help companies fend off competitors by creating a relatively high firewall, entering a 'black sea' where no rivals can imitate and even surpass them in the short run.

Among the various innovative models empowered by the IoT, the transformation of the brand paradigm is particularly critical because it directly affects the views and participation level of end users and partners of the brand, and largely determines the future value proposition of enterprises.

As the world’s top brand strategy consultancy, Kantar has always been committed to exploring the development and evolution of brands across different times and environments. This time, by working with professors from Said Business School, University of Oxford and Haier Group, we aim to answer these important questions in this white paper: What is the new leading brand paradigm in the IoT era? What are the standards and definition of this new paradigm? For enterprises that aspire to win a place in the vast new world of IoT, this white paper will provide a systematic framework that would help them craft a winning strategy by exploring the causes, standards and definitions of the new leading brand paradigm in the IoT era, as well as the impact that this new paradigm will have on organizations and society.
CHAPTER ONE
The Inevitability of IoT Ecosystem Brand in the IoT Era
Since Kevin Ashton put forward the term "Internet of Things" in 1999, the IoT has evolved to become a new engine for global economic growth. The new wave of technology has opened the door to a new era and set a unique tone for the world. New economic forms are emerging and developing at an accelerated speed. An accompanying trend is the birth of a new brand paradigm.
The IoT has triggered "data explosion" in the new era. "Data is an asset" becomes a basic concept guiding the business society, and "user experience-centric" is gradually being into reality.
business opportunities, and therefore find new opportunities to improve operational efficiency and to innovate. Externally, data has become an important corporate credit. Based on the IoT-enabled financial model, real-time data on enterprises’ business, capital, logistics and information flows can be obtained via smart sensors deployed along corporate supply chains and the holistic portrait of corporate operations. These real-time data, together will historical data, will reflect companies’ operation status, making data the companies’ “objective credit” and helping companies enhance creditability conditionally.

**User Experience-centric**

"User experience-centric" is not a new term, but prior to the information technology revolution, it was merely a corporate philosophy on paper.

With the advent of the Internet era, enterprises have begun to collect user feedback by establishing fast and low-cost direct interaction with users. However, in the Internet era, the interaction between enterprises and users relied only on limited touchpoints such as PCs and mobile phones, leaving obtained user data fragmented.

In the IoT environment, on one hand, everything can serve as a data access point. Apart from data generated by users through active interaction, significant amount of passive user data from devices are also recorded in real time (such as tiles that record gait, pillows and mattresses that record sleeping habits). This allows enterprises to obtain a comprehensive, multi-dimensional and dynamic understanding of users. On the other hand, intelligent factories in the IoT era can quickly meet the customization needs of users through modes like flexible production lines and transparent supply chains. Thus, enterprises in the IoT era can truly put “user experience-centric” into practice and always provide the optimal experience to address users needs.

**Three General Features of the IoT Era**

**User Experience-centric**

- By collecting user data from diverse touchpoints, companies in IoT era could obtain a comprehensive, multi-dimensional and dynamic understanding of users
- Smart factories in IoT era can quickly meet the customization needs of users through flexible production lines and transparent supply chains

**Interconnectedness and Multi-dimensional Connection**

- Objects can connect with each other without human intervention, which ensures that content is transmitted in an objective, timely and comprehensive fashion to a certain extent
- Virtual and reality are tightly connected. Physical entities establish their own digital twins which makes their status traceable, analysable and predictable

**Data-driven and Data as an Asset**

- Internally, data could help enterprises reduce costs, enhance efficiency and create new value
- Externally, data has become an important corporate credit
Economic Features of the IoT Era

1.2

The new era comes with its own features like “interconnectedness and multi-dimensional connection”, “data-driven and data as an asset” and “user experience-centric”. These features are not only fostering new economic forms, but also making some already emerging forms more entrenched in the IoT era. Among them, "quickly iterative and scenario-based experience economy", "mass-customized community economy" and "sharing economy, in which 'the right to use' outweighs 'the right to possess' " have jointly laid the foundation for economic development in the IoT era.

Quickly Iterative and Scenario-Based Experience Economy

The arrival of IoT means that devices have become more networked, while technology development has driven hardware to become more “softwarized” - that means hardware provides only basic functions while advanced functions are realized by software. The result of this network connectivity and "softwarization" is that users are no longer buying an existing product, but an experience of continuous iteration and upgrading. For example, Tesla, dubbed as "networked computer with wheels" or "software-defined cars", can quickly update the functions of its vehicle software system through over-the-air technology, constantly bringing new intelligent experiences to car owners.

As such, in the IoT era, the relationship between enterprises and users will not cease upon the completion of a purchase. On the contrary, this marks the beginning of a new round of optimization and upgrading. Each networked product provides enterprises with an interface that they can use to continuously interact with users and get user data in real time. Leveraging technologies like machine learning and artificial intelligence, enterprises can explore the latest needs revealed by user data and upgrade their products and services quickly.

At the same time, the interconnectivity among things has rewritten the rules of user experience - the focus is no longer on a single product but a scenario-based holistic solution. In other words, "products would be replaced by scenarios", which are the experience units in the IoT era. As such, enterprises need to create a complete set of value experiences to address various user needs under a certain scenario.

"Scenario-based experience economy" combined with "quick iteration" has thus formed the first economic characteristic of the IoT era – a "quickly iterative and scenario-based experience economy".

Mass-customized Community Economy

In IoT era driven by data from multiple dimensions, the development of mass-customized community economy has been expedited.

On one hand, enterprises in the IoT era can accurately capture demand. Because of the IoT, the digital footprint of users can be captured and traced in real time via multiple touchpoints. User data collected by enterprises can thus grow exponentially and target different scenarios or time frames. Based on this comprehensive user data, enterprises can accurately depict different communities, and capture the latest needs of each community continuously and dynamically.

On the other hand, conditions on the supply side are ripe. First, for the production of tangible products, product modularization,
flexible production line, transparent supply chain and other modes are becoming more established to ensure that enterprises can quickly carry out mass customization for the specific needs of community users at a low cost. Second, with the “softwarized” trend gaining greater traction, more targeted and personalized functions could be achieved through different configurations of software embedded in products. Personalization of such software doesn’t simply mean providing different solutions to different people, but could go further to address a person’s specific need in a specific time frame or scenario, that is, to provide on-demand services anytime and anywhere.

These changes on the demand and supply sides allow mass-customized community economy to increasingly penetrate all areas of society, making it a defining trait of economic development in the IoT era.

Sharing Economy: "The Right to Use" Outweighs "The Right to Possess"

Finally, the IoT era will also promote the rapid development of the sharing economy, whose basic feature is that “the right to use” outweighs “the right to possess”.

We have long been living in a world of excess capacity and idle resources, yet previously there was a lack of mature technologies to realize a large-scale sharing economy. With the advent of the mobile internet, we began to have low-cost, large-scale and real-time means for sharing, but because the energy level of people, who serve as intermediary for information transmission, is limited, the sharing economy was still confined to individual areas, such as business like Airbnb.

The arrival of IoT has created technical conditions for the sharing economy to become larger in scope and scale. As we mentioned in the previous segment about the general features of the IoT era, IoT allows things to be directly connected to one another without the help of human. Therefore, the sharing platform in the IoT era can grasp the status of each item in real time through direct dialogue with these objects. As long as there are good ways to commercialization, all objects can access the sharing economy and optimal allocation of resources in real time can thus be realized. By this way, the sharing economy will reach new heights.

The development of this economic form in various fields will lead to the transformation of mindset. As people gradually discover that physical goods are like water, which can be obtained on demand without the need to possess them, they will care less about "the right to possess" and pay more attention to "the right to use". At the same time, in the sharing economy where "everyone creates and everyone shares", every individual is both a co-creator and a beneficiary. This will blur the boundary between "producer" and "consumer" in people’s minds, and the concept of prosumer will become increasingly popular.
Economic Features of the IoT Era

Quickly Iterative and Scenario-Based Experience Economy

- Devices become more networked and hardware more softwarized
- Users are no longer buying an existing product, but an experience of continuous iteration and upgrading
- Interconnection among things
- Users demand a scenario-based holistic experience instead of a single product/service (products would be replaced by scenarios, which are the basic experience units)

Mass-customized Community Economy

- Demands can be captured accurately
- Efficient and intelligent analysis of user data
- Accurately and timely capture the latest needs of each community
- Conditions on the supply side are ripe
- 1. Mass customization
- 2. More personalized functions could be achieved through different configurations of software embedded in products

Sharing Economy: "The Right to Use" Outweighs "The Right to Possess"

- Mature technology
- No longer limited by the energy of people who serve as the intermediary for information transmission
- Create technical conditions for the sharing economy to become larger in scope and scale
- Changing mindset
- 1. "The right to use" outweighs "the right to possess"
- 2. The boundary between "producer" and "consumer" in people’s minds will be blurred, and the concept of ‘prosumer’ will become increasingly popular
Based on the unique characteristics of the era, what should be the leading brand paradigm in the IoT era?

History has shown us that the transformation of economic characteristics over time has led to multiple rounds of evolution in leading brand paradigm.

In the traditional industrial era, the economy was centered on production and manufacturing. The main responsibility for enterprises was to manufacture products or create services, and then find consumers/customers through various offline channels.

With the development of the information technology revolution, the internet has for the first time made real-time large-scale online connectivity possible. In order to make connections orderly, efficient, and capable of creating value, a new platform model came into being. Under this mode, the platform itself does not manufacture products or services but is devoted to the smart matching of supply and demand, i.e. the matching of people and people, people and information/content, as well as people and products/services. For example, WeChat matches a person with friends, Taobao matches buyers with goods, and Toutiao matches readers with articles. WeChat, Taobao and Toutiao are the prominent representatives of platform brands in this era.

In terms of the IoT era, as we stated in “quickly iterative and scenario-based experience economy”, the interconnection among things makes users no longer satisfied with accessing a single product/service, but start to demand a scenario-based holistic solution. Even in a simple scenario, however, the product/service categories involved are so diverse that an enterprise cannot cover the entire spectrum of offerings. It is necessary to work with cross-industry, cross-category partners to jointly create a comprehensive solution. At the same time, “quick iteration” also means that this collaborative relationship among enterprises should be constantly aligned in response to users’ constantly changing needs. Therefore, the IoT era calls for a mode that can break the traditional industry/category barriers and effectively promote dynamic multilateral cooperation across industries. Brands that fit in this mode are called ecosystem brands.

The emergence of ecosystem brand is the inevitable result of the progress of society. Nowadays, both product brands and platform brands are encountering red ocean competition. This is due to the fact that, as competitors learn from each other, models tend to homogenize as they mature. No essential differences of user experience lead to the resurgence of price wars. In recent years, frequent sales campaigns launched
by major e-commerce platforms embodied this point of view. As the original mode lacks growth momentum, ecosystem brands have undoubtedly opened up a new road. By introducing integrated, personalized and iterative solutions for users, ecosystem brands can reduce the price sensitivity of users while enhancing their stickiness, thus winning more space for sustainable growth in the future.

Meanwhile, ecosystem brand is also a vivid application of the sharing economy at the enterprise level: in the IoT era, the power of an enterprise is not determined by how many resources it owns, but by how many resources it could mobilize and integrate. Corporate strategy has thus evolved into "the art of integrating and managing resources that you don’t own".7
CHAPTER TWO
Standards and Definition of IoT Ecosystem Brand
IoT ecosystem brand has begun to emerge in social and economic life. In order to seize the opportunity of the times and gain a competitive edge, each brand should understand the core characteristics of this new brand paradigm. Compared with the traditional definition of brand, what is the uniqueness of IoT ecosystem brand? What are the standards and definitions of IoT ecosystem brand?
2.1

The Core Differences between Definitions for Traditional and Ecosystem Brand

Traditionally, a brand is defined by “what users perceive on the overall experience the brand provides”. "user perspective" and "experience" are the two key words in this definition. IoT ecosystem brands have achieved breakthroughs in both of the two aspects.

On one hand, IoT ecosystem brand expands the meaning of "experience" from user perspective through multiple dimensions. These expansions are in line with the "economic characteristics of the IoT era" which have been discussed in the previous section. First, "quickly iterative and scenario-based experience economy" means that the experience brought by IoT ecosystem brand shifts from "product focus" to "scenario focus". And such an experience does not remain stagnant, but can be continuously iterated according to user needs. Second, the IoT has accelerated the development of "mass-customized community economy" so that the experience brought by an IoT ecosystem brand will be personalized and customized. Third, the IoT ecosystem brand will result in an unprecedented diversity of user experience. As Just as what we discussed in sharing economy, In IoT era, users not only play the role of consumers, but also become producers who co-create with brands along the whole process of product design, communication, use, and iteration. Thus they can obtain multi-dimensional rich brand experience.

On the other hand, IoT ecosystem brand achieves a breakthrough as it adopts multiple angles that go well beyond the single "user perspective" used in the traditional definition of brands. As IoT ecosystem brand need work with multiple partners to break down industry barriers and create comprehensive solutions, partner perspective should be included in the definition. Meanwhile, as the leading brand paradigm in IoT era which covers a wide range of industries and has strong social influence, IoT ecosystem brand must possess a brand purpose that is devoted to taking more social responsibilities and creating greater social good. Therefore, IoT ecosystem brand should also incorporate the "brand purpose perspective".

Unlike the traditional definition of brand, IoT ecosystem brand has made breakthroughs in two aspects - "perspective" and "experience".
The core characteristics of IoT ecosystem brand helped us set the general direction for its standards. To better grasp them, we have interviewed industry experts, branding experts and executives of leading IoT enterprises, and also adopted Social Listening in three markets where IoT is developing rapidly - China, the United States and the United Kingdom - in a bid to understand the views that experts, scholars, industry players and the public have on brands in the IoT era. Based on expert interviews, social listening and desktop research, we have defined the specific criteria/metrics under the three perspectives of IoT ecosystem brands (as listed in the following chart), and identified the most iconic cases for each criterion/metric.

The definition of IoT ecosystem brand features 3 perspectives, 7 criteria and 19 metrics.

### Standards of IoT Ecosystem Brand under Three Perspectives:

<table>
<thead>
<tr>
<th>Perspectives</th>
<th>Criteria</th>
<th>Metrics</th>
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<tbody>
<tr>
<td><strong>Brand Purpose</strong></td>
<td>Strive to continuously create and pass on greater value for the society</td>
<td>Committed to the sustainability of environment and resources</td>
</tr>
<tr>
<td><strong>Perspective</strong></td>
<td></td>
<td>Devoted to constantly improving peoples’ lives</td>
</tr>
<tr>
<td><strong>Empower</strong></td>
<td></td>
<td>Empower various enterprises and entrepreneurs to continuously foster higher-level economic development</td>
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### Perspectives

<table>
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<th>Criteria</th>
<th>Metrics</th>
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<tr>
<td>Offer unbounded products/services</td>
<td>Have a large number of categories/industries in the ecosystem</td>
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<td></td>
<td>Offer scenario-based, seamless and integrated solutions</td>
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<td>Provide ever-evolving and customized integrated solutions</td>
<td>Provide customized products/services/solutions based on users’ needs</td>
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<tr>
<td></td>
<td>Make continuous evolution of products/services/solutions based on on-going interaction with users</td>
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<tr>
<td>User Perspective</td>
<td>Superior experience: users continue to have better-than-expected brand experience in the ecosystem</td>
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<td></td>
<td>High willingness in co-creation: users are willing to interact with brand to co-create products/services/solutions and become “prosumer”</td>
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<td>Make life-long users</td>
<td>Strong recommendation: users are willing to share their good brand experience with others</td>
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<td></td>
<td>High related purchase: users own multiple ecosystem products or purchase related ecosystem services after buying ecosystem products</td>
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<td>Keep an open, diverse and dynamic ecosystem</td>
<td>Consist of diverse industries</td>
</tr>
<tr>
<td></td>
<td>Have diverse types of players with different roles</td>
</tr>
<tr>
<td></td>
<td>Maintain an open entry and dynamic optimization mechanism to continuously attract new members and eliminate underperformed members</td>
</tr>
<tr>
<td>Partner Perspective</td>
<td>Have a spirit of sharing (e.g. sharing underlying IoT technology, data resources or general business capability)</td>
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<tr>
<td>Enable sharing, collaboration and co-creation</td>
<td>Facilitate efficient collaboration among multiple partners in the ecosystem (e.g. by setting unified technical standards, business conduct standards, etc.)</td>
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<tr>
<td></td>
<td>Enable each partner to bring its comparative advantage into play to jointly create solutions</td>
</tr>
<tr>
<td>Achieve value-added sharing and win-win symbiosis</td>
<td>IoT ecosystem brand and its partners can both achieve growth in ecosystem revenue</td>
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<tr>
<td></td>
<td>IoT ecosystem brand and its partners can both share added value derived in the ecosystem</td>
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Brand Purpose

Perspective

Strive to continuously create and pass on greater value for the society.

As mentioned above, as the leading brand paradigm of the times, the IoT ecosystem brand must have a clear brand purpose. In addition to acquiring business benefits, IoT ecosystem brands also need to undertake the responsibility of creating greater value for society. This perception is closely linked with the ESG concept (Environmental, Social, Corporate Governance) that has been widely discussed and adopted in recent years. It refers to the continuous contribution of brands in promoting sustainable development and enhancing the overall value of society. This criterion contains three metrics.
Committed to the sustainability of environment and resources.

Good ecological environment is the most inclusive public good. Green development and ecological-friendly civilization are important cornerstones to ensure sustainable development. As the leading brand paradigm, IoT ecosystem brand should adhere to the concept of environmental protection and sustainable use of resources, actively creating long-term value.

CASE

Siemens is committed to creating a better life for everyone and society through innovative technology solutions. One important pillar of Siemens’ strategy is to take sustainable development as its corporate responsibility. Siemens always strives to achieve a balance between environmental resources protection and corporate interests, and aims to deliver on its social, environmental and resource responsibility through the provision of products and solutions. Together with ecosystem partners, Siemens has contributed to the realization of United Nations Sustainable Development Goals in many countries and regions around the world.

For example, in dealing with global air pollution, the Siemens City Air Management (CyAM) software can use artificial intelligence technology to forecast air quality over the coming days and assess the efficacy of potential measures that need to be taken. Using CyAM, government can formulate long-term policies and laws based on objective data to improve air quality. The city of Nuremberg, Germany, has been using CyAM to help address air pollutants and greenhouse gas emissions over the years. Leveraging an IoT-enabled system, Siemens has managed to collect air quality data through sensors scattered across Nuremberg. CyAM leverages collected data to simulate and predict air conditions to help municipality government formulate corresponding measure. With such efforts, the city has managed to control the daily and even hourly airborne pollutant levels within the range recommended by the World Health Organization.
Brand Purpose Perspective

Strive to continuously create and pass on greater value for the society

Devoted to constantly improving peoples’ lives.

For a brand with a sense of social responsibility, it not only needs to promote sustainable development by protecting the environment and resources, but should also devote itself to solving practical social problems, improving people’s living standards, and enrich their spiritual life in order to promote the overall well-being of society. Therefore, the IoT ecosystem brand should place people as the priority, humanize science and technology, and strive to let everyone experience the positive impact of the IoT era.

/ CASE /

As a leading global provider of information and communications technology (ICT) infrastructure and smart devices, Huawei has a vision and mission to "expand the benefits of technology to everyone, everywhere", and actively assumes social responsibility.

The company has implemented the "TECH4ALL digital inclusion initiative", which is aimed at bridging the digital divide and allowing digital technology to benefit every person, home and organization by building ubiquitous connectivity, fostering an ecosystem of rich application and enhancing the digital skills of society.

Although people in remote areas have strong demands for internet access, few operators or equipment manufacturers are willing to dedicate time and effort to explore innovative solutions to build rural networks as construction and maintenance costs are high in sparsely-populated areas. In response to this problem, Huawei has launched a dedicated program called RuralStar to offer innovative network solutions for countryside residents with an aim to provide low-cost, ultra-long distance voice and digital access for remote areas like countryside, mountainous areas, islands and deserts. In Kenya, Africa, the program provides a 4G network, a mobile wallet called Mobile Money and e-commerce solutions for local villagers, improving their quality of life. In the Daliangshan area of China’s Sichuan province, Huawei RuralStar provides the 4G network for residents of the Yi ethnic group, who can now have video chats smoothly with their relatives working out of town and sell local specialties through e-commerce platforms. Huawei RuralStar has also greatly improved the living standards of people in remote areas with its network enabling services such as distance learning and telemedicine.
Technology giant Microsoft has always advocated improving life with science and technology and applying the idea of equality and inclusiveness to every aspect of its innovation. For example, in terms of providing care for those suffering from medical conditions, Microsoft has developed a smart watch that can help Parkinson’s patients overcome hand tremors to write and draw normally.

On top of providing care for the vulnerable, Microsoft also applies its technology widely in medical and public health sectors. Over the past few years, Microsoft AI technology has made remarkable achievements in healthcare. In early 2020, Microsoft kicked off the AI for Health Project, aiming to empower non-profit organizations, researchers and research organizations through artificial intelligence and data science tools. For example, the interpretation of pathological slides remains a great challenge in China today as there is a shortage of professionals - there are only two pathologists out of every 100,000 people in the country. Meanwhile, the process of screening and the examination of pathological sections is also time-consuming. Through deep learning, AI can support doctors to improve pathological screening, allowing more data to be analyzed quickly and diagnosis to be performed more efficiently.

During the COVID-19 pandemic, Microsoft accelerated the AI for Health project to provide support for researchers who work on the frontline to combat the contagion. For example, Microsoft offered powerful computing resources for the “COVID-19 High Performance Computing Consortium” and meanwhile, enabled the Institute for Health Metrics and Evaluation Institute at the University of Washington to visualize the COVID-19 data it released as well as to make data-based prediction. Based on their professional knowledge and research experience in fields like computational biology and data analysis, researchers of Microsoft Research Asia constructed a website called COVID Insights (covid.msra.cn) that can analyze COVID-19 related data in depth and from multiple dimensions.
Empower various enterprises and entrepreneurs to continuously foster higher-level economic development.

IoT ecosystem brands have the opportunity to make a decisive impact on social economy as they can connect multiple partners across different industries/categories, provide rich resources, and possess comprehensive technological and commercial capabilities. Having a larger influence means having greater responsibilities. The IoT Ecosystem Brands should empower enterprises and entrepreneurs by sharing resources, experiences and capabilities, allowing them to achieve industrial upgrading and rapid development. This will help forge a dynamic landscape and spur long-lasting vitality in the ecosystem and social economy.

/ CASE / 

As the world’s first industrial internet platform which initiated end-to-end user participation, Haier COSMOPlat extensively empowers all types of enterprises from 15 industries such as RVs, ceramics, apparel and machinery to help enterprises improve their capabilities in procurement, design, manufacturing, logistics, service, interaction, marketing and so on.

Take the apparel industry as an example. Haier COSMOPlat helps enterprises in this sector better understand users, achieve mass customization production, reduce inventory and enhance overall efficiency. For instance, COSMOPlat helps Aspop, which is a traditional jeanswear manufacturer, optimize its processes and achieve direct interaction with users. Users can directly participate in the manufacturing process and choose the style and fabric they desire. Today, Aspop handles about 2,000 customized orders for jeans that are directly shipped from the factory to users’ homes every day, which helps significantly reduce its inventory.

After purchasing customized clothing, users have higher demand for cleaning and storage. Through COSMOPlat industrial internet platform, Aspop is able to connect with users of smart washing machines and smart wardrobes within Haier Internet of Clothing, so that it can obtain and realize users’ new customization demand and constantly upgrade user experience. Leveraging the ecosystem of COSMOPlat, Aspop has developed partnerships with over 100 top designers and more than 10 AI firms.

Aspop has benefited from its tie-up with COSMOPlat: production efficiency has increased by 28 percent; the delivery cycle has been shortened from 45 days to 7 workdays; the minimum order quantity has fallen from 1,000 pieces to just 1; inventory has been lowered by 35 percent; gross profit of customized products has been raised from 12.5 percent to over 40 percent, 3.2 times that of the previous level. 35
Brand Purpose Perspective

Strive to continuously create and pass on greater value for the society

IoT Ecosystem Brand

Committed to the sustainability of environment and resources

Devoted to constantly improving peoples’ lives

Empower enterprise and entrepreneurs to foster economic development

Commercial Value

Social Value

Strive to continuously create and pass on greater value for the society

CHAPTER TWO • Standards and Definition of IoT Ecosystem Brand
User Perspective

Apart from brand purpose, IoT ecosystem brands should also meet the following three criteria from the perspective of users: offering unbounded products/services, providing ever-evolving and customized integrated solutions, and making life-long users.

First, offer unbounded products/services.

The “unboundedness” here refers to rich products and services that can be continuously expanded according to new user needs. The level of richness can be measured by the number of categories/industries in the ecosystem.

Second, provide ever-evolving and customized integrated solutions.

Third, make life-long users.
User Perspective | Offer unbounded products/services

**Have a large number of categories/industries in the ecosystem.**

We find that many leading brands in the IoT related fields attach great importance to this metric, and they continuously track the number of categories and types of devices supported by their ecosystem’s platform in financial reports or other public reports. For example, as a landmark platform of the Haier IoT ecosystem, the Haier Smart Home APP supports the interconnection among 73 categories and over 6,000 product models, including smart home appliances/furniture such as refrigerators, wine cabinets, washing machines, air conditioners, water heaters, kitchen appliances, water purifiers, furniture, and security protection.

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**/ CASE /**

<table>
<thead>
<tr>
<th>Brand</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Haier</td>
<td>The Haier Smart Home APP supports <strong>73</strong> categories and more than <strong>6,000</strong> product models. (2020)</td>
</tr>
<tr>
<td>Alibaba</td>
<td>TMALL Genie IoT Open Platform supports over <strong>100</strong> product categories.16 (2020)</td>
</tr>
<tr>
<td>Huawei</td>
<td>Huawei HiLink supports more than <strong>100</strong> categories.17 (2019)</td>
</tr>
<tr>
<td>Amazon</td>
<td>The number of devices with Alexa embedded surpasses <strong>150</strong>.18 (2019)</td>
</tr>
</tbody>
</table>
Apart from brand purpose, IoT ecosystem brands should also meet the following three criteria from the perspective of users: offering unbounded products/services, providing ever-evolving and customized integrated solutions, and making life-long users.

First, offer unbounded products/services.

Second, provide ever-evolving and customized integrated solutions.

Apart from unbounded products/services, becoming an IoT ecosystem brand also means that a company should offer users three important value points: seamless/integrated, personalized/customized, and constantly evolving.

Third, make life-long users.
Offer scenario-based, seamless and integrated solutions.

As stated above, with the interconnection among things, users’ demand goes well beyond a single product/service. Therefore, instead of providing a single product/service, IoT ecosystem brands should integrate multiple products and services based on specific scenarios, and form integrated, seamless and holistic solutions.

Haier Vaccine Network has taken the initiative to launch an IoT intelligent vaccination solution, which provides users and relevant stakeholders with seamless, integrated experience that covers vaccine storage, logistics, vaccination, and observation. The solutions ensure reliable logistics of the vaccines, block suspected unqualified vaccines immediately and enable end-to-end tracing.

For vaccination recipients, Haier Vaccine Network provides an integrated and standardized service including reservation, vaccination, and observation through automatically matching suitable vaccines with the recipients. Parents can make reservations for their kids via mobile APPs in advance, double check information by mobile phones or on-site screens at the vaccination site, and track information regarding vaccines, cold chain or medical staff. These measures ensure the transparency of the injection process, enhance safety of vaccination, and thus improve people’s trust. At the same time, Haier Vaccine Network pays particular attention to experiential details - it has set up a children’s playground, themed-decorations and cartoon movies at vaccination sites to provide kids with a fun experience.

For vaccination sites and governments, Haier Vaccine Network avoids human errors and makes vaccination management more orderly, efficient, and accurate in a more intelligent and information-based way. The approach addresses the “last kilometer” of vaccine security and strongly supports regulatory supervision over vaccination. To date, Haier Vaccine Network has covered more than 1,000 vaccination sites in 28 provinces and cities throughout the country, ensuring the safety of vaccination for millions of children.

Bayer Crop Science has built a new integrated IoT solution based on AWS IoT Core for seed growth.

This IoT solution can collect all kinds of seed-related data from different stages such as planting, growing, harvesting and transportation, and integrate data collection, data processing, and analysis.

In the seed-planting and growing stages, the solution can collect a variety of real-time data (such as temperature, humidity levels, and current soil conditions) that may affect seed growth. The collected data is then processed and analyzed in the cloud in real time. Seed companies will develop an optimal microclimate prescription if a specific batch of seeds is found not growing well due to unideal temperature or humidity.

The solution can collect an average of one million traits per day during harvest season. Data analysts can now use their mobile devices to quickly review and analyze data from the sensors of the harvester and make necessary corrections in the field to satisfy their customers’ needs for quality control.
IoT ecosystem brands should also adapt to the booming development of the "mass-customized community economy" in the IoT era, and offer precisely tailored and customized products/services/solutions based on different users' needs. This will allow users to feel that their needs are fully respected and taken seriously.

Multiple Tmall Genie smart speakers can meet users’ customization needs by creating unique user experience.

The unique "exclusive story" function of Tmall Genie CCH can leverage TTS technology (Text To Speech) to mimic parents' voice to tell bedtime stories for their children. Parents only need spend some time to record five short stories in Tmall Genie APP. Banking on the TTS technology, Tmall Genie can then read stories by mimicking parents' voices. After eight hours of learning, algorithms can create audio recordings for 400 stories, a pool big enough to entertain kids over many nights when their parents were not with them.

Tmall Genie Sugar Cube R has launched a "Sugar Fans Project", which allows brands, celebrities and other intellectual property holders to customize the device's color, appearance, special functions, and exclusive rights for users. For example, the Starbucks-themed Tmall Genie Sugar Cube R features the coffee chain's iconic green color and has a unique cover in the form of a barista bear. By linking Starbucks account and delivery address to the device, users can use Tmall Genie Sugar Cube R to order Starbucks beverages and snacks. They can also let Tmall Genie play music people hear in Starbucks outlets, allowing users to be immersed in the coffee shop vibe even at home.²¹ ²² ²³

On April 28, 2020, the Shanghai Consumer Council announced the finalists of the "2020 Experience Shanghai" campaign. The Haier Smart Home 001 Experience Center was among the 21 venues that obtained this accolade. These venues demonstrated the versatile experiences that Shanghai can offer as a global city. The most popular scenario-based solution in the Haier Smart Home 001 is the smart balcony solution.

Originally, the smart balcony scenario featured a washing machine/dryer combination, which is preferred by Shanghai users. In the iterative process of user experience, Haier Smart Home found that some users prefer to place fitness equipment instead of a washing machine in the balcony. Haier Smart Home thus teamed up with its ecosystem partners in the fitness sector to design a balcony for fitness. To better cater to different users’ needs, Haier created a variety of scenario-based balcony solutions afterwards, such as balcony for leisure, balcony for reading, balcony for plants and pet raising. So far, Haier Smart Home has co-created seven ecosystems together with users and partners around users’ needs for clothing, food, housing, and entertainment - such as internet of clothing, internet of food, internet of air-condition and internet of water - with more than 30,000 smart scenario solutions.
C3.ai is a leading AI software provider that focuses on the acceleration of digital transformation.

C3.ai provides end-to-end platforms that develop, deploy and run AI, predictive analysis and IoT applications in mass production. C3.ai’s cloud platform offers a full range of products and services to address the needs of developers, data engineers and data scientists challenged with bringing applications into production at scale. Most of the components are based on open source software such as PostgreSQL, Cassandra, Kafka, and Hadoop. Yet the platform is also designed to be modular and open, so customers can swap in preferred tools and components. C3.ai allows customers to choose from a host of options based on their needs, including integrated development environment, data platform, framework and tools of artificial intelligence and machine learning, and DevOps components, thus truly realizing the customization of services and solutions. For example, BHGE and C3.ai have jointly developed new AI intelligent tools for the oil and gas industry. Through end-to-end integrated tools and modular components, C3.ai customized the BHC3 Reliability system for BHGE. This system can be deployed across all sectors in the oil and gas industry and can be customized for asset maintenance and process monitoring on onshore and offshore platforms, compression stations, refineries, and petrochemical plants, reducing customers’ operational downtime and improving their productivity.
Make continuous evolution of products/services/solutions based on on-going interaction with users.

The products/services/solutions provided by IoT ecosystem brands cannot be one-time or static. In the IoT era, the completion of transactions no longer means the end of the relationship between brands and users, but rather, the beginning of a new round of interaction. IoT ecosystem brands should be able to constantly explore user’s new pain points and needs through continuous interaction with users, promoting the iteration of products/services/solutions.

CASE

GE has always been committed to reforming traditional industries and promoting the development of the IoT industry through its products, services and solutions.

The company has developed an industrial IoT platform called Predix, which is designed to lead the effective management of industrial enterprises and to guide them through technology and business transition. By integrating devices, monitoring/analysis software and cloud services and interconnecting various complex technologies, the platform helps industrial companies kick off their industrial IoT journey and find their appropriate value proposition in the IoT era. Leveraging the wide presence of Predix in IoT related industries, GE is able to connect various partners in key areas of the industrial value network. Meanwhile, GE can take advantage of its century-long experience and capability in the industrial field to effectively empower partners and join hands with them to continuously optimize solutions and improve collaboration efficiency. In addition, GE Predix leverages its own physics and engineering-based models, as well as statistical and heuristics models to enable industrial data science and iterate solutions by continuously incorporate learnings from industrial business processes.

As one best practice in point, Dattabot has joined forces with GE Predix to develop HARA - a smart-farming solution designed to take Indonesia’s agriculture industry into the modern digital industrial age. Thanks to the combination of Dattabot’s most advanced analytics and most comprehensive data library in Indonesia, and GE Predix’s expertise in modular services/products, model building and multi-dimensional IoT, the two parties not only realized the integration and analysis of multi-dimensional data in the software development process, but also streamlined the development process and accelerated the product iteration. In addition, following the application of the software, HARA can now detect and analyze real-time data via interconnected devices and offer feedback to terminals, thus promoting the constant optimization and iteration of the solutions. Based on the continuous interaction between GE Predix and Dattabot and their iterative innovation, the time needed to develop the new feature was cut from two years to one month, which successfully helped Indonesia’s agricultural sector transform towards a digital model. At the same time, HARA results in a 60% improvement in crop yield, a 50% reduction in farming inputs, and a 25% drop in crop failure rates in Indonesia.

27 28
User Perspective: Provide ever-evolving and customized integrated solutions

CASE

Through community-based interactions, the Haier team extensively solicited users’ feedback on washing machines and identified “large capacity”, “quietness” and “the ability to thoroughly clean stains like grass leaves and juice” as the typical needs. Based on laboratory research, the technical team developed a “Yunxi washing machine” that can remove special stains by taking into consideration different parameters such as water temperature, speed, and water level. On the day of its debut, 156,000 models of first-generation Yunxi were pre-ordered. Following this, Haier quickly iterated the lineup through continuous interaction with the community. It took 3 months for the first-generation model to be rolled out, 2 months for the second-generation, and only 45 day for the third-generation - three major iterations were made within just a year. The debut sales volume of the latter-generation products jumped over 30 percent, and the prices rose over 10%, compared with the older models. As a bestseller in the market, the Yunxi washing machine is constantly breaking its sales records - sales volume reached 340,000 in 2017, 620,000 in 2018 and 810,000 in 2019.
User Perspective

Apart from brand purpose, IoT ecosystem brands should also meet the following three criteria from the perspective of users: offering unbounded products/services, providing ever-evolving and customized integrated solutions, and making life-long users.

First, offer unbounded products/services.

Second, provide ever-evolving and customized integrated solutions.

Third, make life-long users.

From user perspective, in order to be defined as an IoT ecosystem brand, a brand must make people willing to become life-long users, who refer to those always loyal to the ecosystem. These users are identified with four features, namely superior experience, strong willingness in co-creation, strong recommendation, and high-related purchase. Life-long users are not just consumers/customers, but also brands’ prosumers, chief experience officers and chief recommendation officers.
Superior experience: users continue to have better-than-expected brand experience in the ecosystem.

Unlike the commonly used "user activity" index in the internet era, "superior experience" should not be simply defined by certain user behaviors (e.g. daily login status, login period, etc.), but rather it should focus on whether users have gained experience that exceed their expectations when they interact with the ecosystem. It is only when users obtain an unforgettable, better-than-expected experience in every interaction with a brand that they can truly establish a deep connection with the brand and slowly evolve to become a diehard fan of the brand. Therefore, "superior experience" is a prerequisite to attract consumers/customers to become life-long users.

Amazon uses artificial intelligence and machine learning to optimize product functions, predict user needs and enhance user experience.

Amazon’s Alexa Hunches relies on AI to analyze users’ daily behaviors and automatically provide relevant suggestions. For example, when users say certain utterances such as "Alexa, good night", Alexa will check on the status of various smart devices at home. If the garage lights are still on, Alexa will alert you and offer to turn it off. When users raise questions like "What’s the weather like in New York?" Alexa will automatically identify whether the following questions are related to “New York” and then answer questions about traffic or attractions in New York in a more intelligent manner.

When using other smart home devices connected to Alexa, users can leverage the Alexa Hunches to guide them through the steps to follow, saving the trouble of figuring things out on their own.\textsuperscript{29, 30}
High willingness in co-creation: users are willing to interact with brand to co-create products/services/solutions and become "prosumer".

Diehard fans enjoy "actively interacting with brands" and participating in the R&D, design, communication, and iteration of product/service/solution. For brands, these users have become prosumers, who continuously offer advices to brands and are eager to be a part of brand development.

Strong recommendation: users are willing to share their good brand experience with others.

Becoming life-long users also means that users should be willing to offer strong recommendations for the brand. In the internet era, we usually adopt net recommendation value (NPS, Net Promoter Score) as a key parameter. In contrast, in view of whether users are willing to strongly recommend IoT ecosystem brands, we should not simply assess to which extent users are willing to recommend a brand's products/services/solutions, but whether they are inclined to share their superior brand experience with others. When users recommend a brand’s products/services/solutions to others, they may simply be motivated by financial rewards, but when users share memorable brand experiences with others, it indicates that they strongly identify with the brand. Furthermore, compared with making simple recommendations of products/services/solutions, sharing brand experience stories is more likely to arouse the interest of others in brand. Those who are willing to share their brand stories are truly the brand’s chief recommendation officers.

High related purchase: users own multiple ecosystem products or purchase related ecosystem services after buying ecosystem products.

Finally, "high related purchase" serves as a key metric to define life-long users, which refers to the fact that users often have multiple ecosystem products at the same time, or users buy related services after purchasing products in the ecosystem. As an example in the former scenario, Xiaomi tracks the number of users who own five or more devices (excluding smartphones or laptops) connected to the Xiaomi IoT platform. And as a case in the latter scenario, after purchasing Haier’s Cartridge washing machine, users can leverage IoT payment to buy the service that enables automatic order and door-to-door delivery of laundry detergent when a potential detergent shortage is detected by the washing machine. Once users have superior experience, are willing to co-create with the brands, and have strong recommendation for the brands, they will naturally show a tendency of "high related purchase". This explains why "high related purchase" is an important behavioral metric to identify life-long users. For life-long users, their purchase in the ecosystem will not be one-time, but recurring.
Xiaomi has been constantly tracking "the number of users with five or more devices (excluding smartphones and laptops) connected to the Xiaomi IoT platform" in its financial report. In the first quarter of 2020, the number of such users increased to 4.6 million, up 67.9% over the same period last year.

Xiaomi's IoT devices are designed to proactively provide recommendations for users to encourage related purchase. For example, when a Xiaomi humidifier detects poor water quality, it will automatically recommend water purifiers. A Xiaomi rice cooker will also recommend rice brands according to user's preferences. Xiaomi IoT devices can also remind users when a consumable component is about to expire. For example, Xiaomi air or water purifiers will automatically remind users to purchase new filters when the existing ones are about to be worn out.\textsuperscript{32, 33}

While some brands have already begun to take actions in some of the four aspects above, very few have fully put the whole concept of life-long users into practice. In China, Haier is considered as a leader in the implementation of life-long users. Many of its practices have been heralded as examples for other brands to follow.

Unlike traditional logistics companies that focus on fast, timely delivery of a single product, Haier Ririshun Logistics adds value for users by providing personalized, and scenario-based holistic logistics solutions that complement its "delivery by appointment, delivery and installation in one go" service. Take the Ririshun Logistics fitness solution as an example. During the COVID-19 pandemic, Ririshun Logistics launched a nationwide home-based fitness campaign called "Ririshun Logistics Balcony Marathon" which provided users with excellent fitness scenario experience.

Superior Experience

In the IoT era, what users need is more than a fitness equipment, but the experience of health and wellness that a fitness scenario provides. Ririshun Logistics catered to a myriad of needs associated with fitness equipment to provide scenario-based logistics solutions. Ririshun Logistics constantly categorized users' diverse fitness needs and developed a new mode for scenario-based logistics solutions.

To address users' personalized fitness needs to shape body, reduce fat or relieve pressure in places like balcony or living room, Ririshun Logistics launched a series of activities such as making healthy diet recommendations for users, or helping them learn more about running or the different workouts they could perform on the treadmill. By interacting with users in such diverse ways, Ririshun created customized fitness scenario solutions for different users, and also developed some extremely popular fitness solutions. Its user experience was also expanded from the purchase, delivery and use of fitness equipment to a holistic all-scenario fitness experience integrating exercise, diet, and personal care.
User Perspective | Make life-long users

**High Willingness in Co-creation**

The total number of online interaction in “Ririshun Logistics Balcony Marathon” has exceeded 16 million since its launch, with 1.8 million participating in this fitness-themed experiential crowd-streaming. Unlike “live streaming”, “experiential crowd-streaming” is not “hosted by internet celebrities or sales-driven”. Instead, it is “led by ordinary users, internal entrepreneurs and ecosystem partners, with an aim to enhance scenario-based user experience”. The experiential crowd-streaming has attracted some 30 quality ecosystem partners. When brands and internal entrepreneurs have livestreaming events, users can actively discuss what they are interested in with the brand. When users have livestreaming events, ecosystem partners and internal entrepreneurs can also learn users’ interests and pain points so that they could further improve products and services. “Crowd-streaming” provides effective touchpoints for brands to reach user community. In crowd-streaming, brands and users can have in-depth and diverse interactions that can result in scenario-based solutions with added value. During the campaign, targeting users’ needs of home-based fitness and fat reduction, Ririshun Logistics co-created more than 2,000 home-based scenario solutions with users and ecosystem partners. These solutions, which covered fitness, diet, drinking water and personal care, have greatly enriched users’ fitness experience at home.

**Strong Recommendation**

During the “Ririshun Logistics Balcony Marathon”, users can leverage multiple platforms such as Haier Smart Home APP, Ririshun APP, Douyin, Yizhibo, and VZAN, to conveniently access the home-based fitness solutions. On top of that, users can also experience crowd-streaming on these platforms, where they could share their immersive experiences and interact with other fitness enthusiasts in real time.

Those sharing their experiences in their balconies included college students doing high knees between online classes, yoga enthusiasts demonstrating how to open the back and seven-year-olds using equipment to practice pingpong... The sharing of high-quality experience by users turned the brand activity into an inspiring nationwide sharing campaign.
As Ririshun Logistics precisely grasped users' personalized scenario-based needs and its platform had a great appeal to ecosystem partners, users could not only enjoy sports and fitness during its “Ririshun Logistics Balcony Marathon” experiential crowd-streaming, but also have access to a series of scenario-based solutions developed by Ririshun and its partners (e.g. water drinking solutions, diet programs and health solutions for fitness) and get personalized products/services such as customized functional drinks, nutritious meals, or health and wellness courses. About 15% of fitness equipment users ended up purchasing related fitness products or services such as sports headsets or diet programs for body shaping through Ririshun platform. As Ririshun Logistics managed to meet users' scenario-based needs, it successfully maintained high user stickiness and won more life-long users.

User Perspective: Make Life-long Users

Users continue to have better-than-expected brand experience in the ecosystem

Users are willing to interact with brand to co-create products/services/solutions and become “prosumer”

Users are willing to share their good brand experience with others

Users own multiple ecosystem products or purchase related ecosystem services after buying ecosystem products

High Related Purchase

Strong Recommendation

High Willingness in Co-creation

Superior Experience

Life-long Users

IoT Ecosystem Brand
From the perspective of ecosystem partners, IoT ecosystem brands need to meet three criteria: keep an open, diverse, and dynamic ecosystem; enable sharing, collaboration and co-creation; and achieve value-added sharing and win-win symbiosis.

First, keep an open, diverse, and dynamic ecosystem.

An ecosystem brand needs to have an open ecosystem like a "tropical rain forest" to encourage multiple partners to join. Meanwhile, partners should also be diverse, which means that they either come from different industries or have heterogeneous roles to play in the value chain. Finally, although the threshold for joining is low, the ecosystem should adopt "the survival of the fittest" approach and practice dynamic optimization to ensure that it always has high-quality partners. Specifically, this criterion can be broken down into the following three metrics.

Second, enable sharing, collaboration and co-creation.

Third, achieve value-added sharing and win-win symbiosis.
Consist of diverse industries.

Industry diversity is an important metric reflecting the degree of ecosystem diversity. After all, “a single tree does not make a forest”. A true “ecosystem” is a system that has strong network effect and the capability to ward off risks by pulling together a variety of industries. Some leading IoT brands have already begun to track the number of industries covered in their ecosystem.

/ CASE /

Haier
COSMOPlat industrial internet platform has covered 60+ industries (statistics as of June 2020, with International Standard Industrial Classification of All Economic Activities, Revision 4 used as the standards to define industries).

Huawei
Cloud IoT platform has covered 50+ industries (statistics as of the end of 2019).
Partner Perspective | Keep an open, diverse, and dynamic ecosystem

Have diverse types of players with different roles.

The diversity of roles played by ecosystem members is similar to "species diversity", which is another key metric to measure ecosystem diversity. It is only when multiple heterogeneous roles coexist and they complement and interact with each other can the ecosystem be fully functional and diverse. The diversity of members’ roles will lead to inspirations and cross-sector collaboration among members to produce innovation.

<table>
<thead>
<tr>
<th>Company</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Haier</td>
<td>COSMOPlat connects multiple types of partners including IaaS provider and network carrier, IoT service providers, application developer, product and service providers, solution integrators, and other technical partners.</td>
</tr>
<tr>
<td>Huawei</td>
<td>The IoT cloud platform of Huawei has partners such as independent software vendors, independent hardware vendors, and system integrators.</td>
</tr>
<tr>
<td>Alibaba</td>
<td>Alibaba Cloud IoT Platform has multiple partners including independent software vendors, independent hardware vendors, system integrators, and electronic component suppliers.</td>
</tr>
<tr>
<td>Baidu</td>
<td>The Apollo autonomous driving open platform has partners such as car manufacturers, first-tier component suppliers, chip suppliers, sensor suppliers, transportation integrators, and mobility companies.</td>
</tr>
<tr>
<td>Amazon</td>
<td>Amazon divides the roles of members in the IoT ecosystem into two categories: consulting partners and technology partners. Among them, APN consulting partners are responsible for providing consulting services. APN technology partners are divided according to their different roles in the AWS IoT value chain. They can be edge technology partners, connection technology partners, gateway technology partners, or platform provider technology partners.</td>
</tr>
<tr>
<td>Microsoft</td>
<td>Microsoft has partners such as solution aggregators, system integrators, independent IP solution providers, and equipment manufacturers.</td>
</tr>
<tr>
<td>Siemens</td>
<td>The Siemens MindSphere platform has system integrators, application developers/ independent software vendors, hybrid OT partners, technology and connectivity partners, and consulting/strategic partners.</td>
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</tbody>
</table>
Maintain an open entry and dynamic optimization mechanism to continuously attract new members and eliminate underperformed members.

An ecosystem must be open and dynamic. By setting up an open entry and dynamic optimization mechanism, IoT ecosystem brands can attract a steady stream of partners, while ensuring the quality of these partners. What’s especially noteworthy is that users have the final say on which brands will succeed or be eliminated as their purchase decisions offer a glimpse into the value of each ecosystem partner.

/ CASE /

The Huawei HiLink ecosystem is designed to “break barriers, leverage expertise, and co-create the ecosystem”. It aims to create smart home experiences together with developers, hardware manufacturers, and service providers.

The Huawei HiLink ecosystem provides three flexible partnership models so that partners can find their own ways to access the ecosystem, thus maintaining a low threshold and openness of the ecosystem:

1. "Huawei ZHIXUAN" focuses on in-depth cooperation and empowerment. Huawei and partners jointly innovate and define ecosystem products, and are committed to creating extremely popular ecosystem products that reflect the highest IoT experience standards.

2. "Works with HUAWEI HiLink" is open to all partners. Partners’ products that comply with HiLink connection protocol requirements can be connected to the HiLink ecosystem. This allows partners to embed smart experience into their products and is especially suitable for cooperation with Huawei on a large scale.

3. "Direct Connection on Cloud" allows partners to connect their devices to the cloud solely via WiFi, Bluetooth or other connectivity tool, without the need to integrate the HUAWEI HiLink protocol. Partner’s devices can thus be managed by Huawei’s APP/voice control. This partnership model greatly lowers the threshold of joining the Huawei ecosystem.

Besides maintaining the openness, Huawei adheres to a consumer-centric approach that leverages the HiLink certification system to ensure the high quality of products from ecosystem partners. Huawei works with third-party certification laboratories to define HiLink certification methodology and standards to jointly create a quality assurance system for the smart home ecosystem and support sound and rapid development of the HiLink ecosystem.
To accelerate the development of the IoT ecosystem and empower ecosystem partners, IBM launched the “PartnerWorld” business partner program. Based on the needs of partners, this program establishes three major cooperation paths and allows partners to flexibly participate in IBM’s collaboration ecosystem. The “Build” path is designed for partners that build innovative products; the “Service” path is designed for partners that provide value-added services; the “Sell” path is designed for partners that sell products and services.

Meanwhile, to ensure that the ecosystem improves, IBM has customized a qualification and technical certification system. By evaluating technical capabilities, expertise and customer success stories with high-value transformative solutions, IBM classifies partners into registered, silver, gold, and platinum levels, which represent different competitiveness. The higher the level, the more additional rights and support the partners can receive from IBM. On top of that, IBM also provides training and technical guidance to help partners develop their capabilities, and partners can undergo professional technical assessment to obtain corresponding technical certifications and badges.

IBM is open to partnerships with companies of all types under its well-established rating system and incentive mechanism. Thus it can not only attract more companies to join the ecosystem, but also help its ecosystem partners grow and expand. By doing such, IBM is able to continuously improve the ecosystem, and to maintain the ecosystem’s high-quality growth.

The Smart Balcony scenario of Haier’s Internet of Clothing adopts a dynamic mechanism where “partnerships must be able to address user needs”, in a bid to actively attract ecosystem partners. Take clothes dryers as an example. By relying on Smart Balcony’s leading business model and Haier’s strong brand appeal, Haier’s Internet of Clothing has attracted the industry’s top 5 brands to join the Smart Balcony ecosystem. However, as users required better Smart Balcony solutions, two of the five brands were phased out.
From the perspective of ecosystem partners, IoT ecosystem brands need to meet three criteria: keep an open, diverse, and dynamic ecosystem; enable sharing, collaboration and co-creation; and achieve value-added sharing and win-win symbiosis.

First, keep an open, diverse, and dynamic ecosystem.

Second, enable sharing, collaboration and co-creation.

On top of attracting diverse and high-quality ecosystem partners, ecosystem brands must also effectively empower them and ensure that they can collaborate efficiently and smoothly to jointly create holistic solutions. Specifically, this requires IoT ecosystem brands to have the following features.

Third, achieve value-added sharing and win-win symbiosis.
Have a spirit of sharing.

Just as the natural ecosystem provides water, sunlight, air, and other necessary elements for living organisms, the IoT ecosystem should also provide public resources or universally applicable services for partners in the ecosystem to help them reduce costs, increase efficiency, and grow rapidly. The shared resources and services are diverse, including underlying IoT technology, data resources or general business capabilities in organization/operation/marketing.

To support the innovation of its partners, Microsoft provides them with a wide range of shared resources in both IoT technology and sales.

In terms of technology, Microsoft helps partners develop IoT solutions for different vertical industries or scenarios at a faster pace by providing open source, pre-configured "Solution Accelerators", covering solutions like remote monitoring, smart factories, predictive maintenance, and device simulation. These shared "Solution Accelerators" can effectively help partners develop replicable solutions using a common framework and as a result minimize risks, reduce development costs, and use resources more efficiently. This in turn allows partners to be more focused on strategic innovation.

In terms of sales, Microsoft has created a Co-Selling model for partners who have industry-leading innovation capability and outstanding solutions. Microsoft leverages its brand and market influence to help partners gain access to potential customers or sales leads, and explore a variety of business opportunities.

Huawei makes IoT development easier and more efficient by sharing "three enablement suites" and "four competence centers".

The three enablement suites - open HiLink platform, the intelligent LiteOS operating system, and the dedicated IoT chip - empower partners across multiple industries by Huawei’s capability in cloud, edge and chip.

- **The HiLink platform** enables one-stop development of applications by providing modularized, visualized, and standard development kit.

- **LiteOS** is a dedicated IoT operating system developed by Huawei that serves as a bridge between IoT hardware and applications. Its MapleJS, a dedicated, lightweight IoT edge framework with similar performance as C, helps developer develop applications quickly without profound knowledge in embedded system.

- Huawei HiSilicon’s dedicated IoT chips cover two categories: connectivity and multimedia. Partners can choose based on their needs.

Huawei also provides partners with end-to-end empowerment, including product definition, design and development, quality certification, and marketing, through HiLink’s four competence centers, thus allowing developers to accelerate smart upgrading. The four competence centers are Product Design ID, Independent Design House (IDH) Enablement, Quality/Certification, and Product Marketing.
Facilitate efficient collaboration among multiple partners in the ecosystem.

The IoT ecosystem brands must not only help each ecosystem partner thrive by sharing resources, but also ensure smooth cooperation among partners. Therefore, IoT ecosystem brands need to set and implement unified standards/rules/mechanisms to ensure the quality and efficiency of cooperation within the ecosystem. For example, by establishing unified technical standards and specifications, IoT ecosystem brands enable the interconnection and interoperability of products from various partners. In another example, by designing a sound regulatory mechanism and establishing the basic cooperation framework, IoT ecosystem brands can regulate the collaboration within the ecosystem, eliminate fraud and the behavior to seek self-interest, and prevent the ecosystem from falling into a "jungle war".

/ CASE /

The industrial internet identification and resolution system, which is similar to the domain name system (DNS) in the internet field, is the "nerve center" that supports the interconnection of all things in the industrial internet. The identifier provides key technical support to the system, as it gives a unique "ID" to each product, component, or machine. However, for a long time, the identifiers for home appliance companies have been set irregularly and inconsistently, which led to a serious problem of isolated data islands, and that home appliances from different brands are unable to connect with each other and share data.

Haier COSMOPlat took the lead to cooperate with the China Academy of Information and Communications Technology, the China Household Electric Appliance Research Institute, Shanghai Jiao Tong University, Shanghai Chiyun Enterprise Management Co., Ltd., BSH Home Appliances Corporation, Aux Electric, Shanghai Dongtu Co., Ltd., and Changhong Meiling Co., Ltd. to draft the first identifier standards for the home appliance industry in the industrial internet field, laying the foundation for the precise connection between global supply chains and companies' manufacturing systems, the full life cycle management of products, and intelligent services. To date, Haier COSMOPlat has led or participated in the formulation of 31 national standards and 6 international standards, and spearheaded the formulation of international standards for mass customization in three major international standards organizations - IEEE, ISO, and IEC. These standards, which cover six areas - mass customization, smart manufacturing, smart factories, smart production, industrial big data, and industrial internet - have helped the company gain a reputation as a globally recognized standard maker and leader in the field of mass customization.
The IoT Connectivity Alliance (ICA), led by Alibaba Group, has set up seven workgroups to set unified industry standards which helps achieve efficient interconnection among different IoT devices. The seven workgroups are responsible for formulating standards in the areas of connectivity, data, LPWAN, security, testing, edge computing, and AI application respectively. ICA currently has more than 500 members.\(^\text{54}\)

The Xiaomi IoT Developer Platform sets rules and standards for cooperation framework, technology/design and operations/communications, thus laying a foundation for the interconnection of devices and in-depth collaboration within the platform.

The Xiaomi IoT Developer Platform Cooperation Protocol specifies the basic framework for cooperation. The brand and language usage specifications guide behavior in sales & operations and marketing & communication. The Xiaomi IoT hardware protocol, embedded system protocol and UI design guide help ensure consistency in standards and smooth cooperation in terms of technology and design.\(^\text{57}\)

Amazon has been committed to fostering collaboration among partners through "AWS Partner Network (APN)" and "AWS Device Qualification Program (DQP)". Amazon also applies this approach in building its IoT ecosystem.

Participants in the IoT ecosystem can leverage the AWS IoT partner community in APN to accurately find their partners who have a specific professional ability and can take on a specific role. At the same time, the AWS DQP, as a hardware validation and benefits program, ensures that certified devices can easily and securely connect with each other, which improves the efficiency and smoothness of collaboration among partners.\(^\text{58, 59}\)
Enable each partner to bring its comparative advantage into play to jointly create solutions.

Unlike the internet platform, the IoT ecosystem provides not only a platform for transactions, but also a place for co-creation among ecosystem partners. The IoT ecosystem brands can help ecosystem partners eliminate industry barriers and conduct cross-sector co-creation during the design, R&D and manufacturing stages, so that they can work out solutions that provide the best value experience for users.

Microsoft has adopted a partner-matching model in the IoT ecosystem. Under this model, a partnership is centered on the professional capabilities of a specific partner, and supported by the expertise of other partners. It is designed to give play to the biggest advantages of each partner, thus enabling them to jointly create successful solutions for customers and to expand their business opportunities.

By enabling collaboration among partners with complementary advantages, the model accelerates solution development, enables flexible scalability and improves professional service capabilities, while also increasing the ROI of solutions and effectively boosting profitability.10

"Tmall Genie Miaowu" is a smart home brand that is open for cooperation with partners across all industries. It aims to enable collaboration with quality manufacturers to jointly develop smart life products that integrate innovative design, superior quality and attractive prices, with potential sales of 10 million yuan each.

Tmall Genie and its partners have been deeply engaged in co-creation in product selection, design, planning, and marketing. During cooperation, Tmall Genie will offer the interface of its voice interaction technology and wireless connectivity technologies for IoT application (e.g. Bluetooth and WiFi) to its partners. On the other hand, it will also grant partners access to Alibaba’s proven business know-how and content ecosystem, empowering partners with data-driven approach to consumer insights, increasing web traffic, and Alibaba’s experience in developing extremely popular products. Partner brands will also give full play to their deep insights in their industry/category, as well as their advantages in manufacturing, quality control and after-sales service.

Tmall Genie has successively cooperated with brands such as Breo and JMGO to create a series of extremely popular Miaowu products such as the AI voice-activated smart eye massager and the Tmall Genie smart projector "Small Red Box". During China's 618 Shopping Festival, Tmall Genie Miaowu launched 50 new products, including various large and small home appliances. Sales of 10 Miaowu products exceeded 10 million yuan each.60 61 62
In response to users’ needs for home renovation, Haier Smart Home integrated the resources and advantages of various ecosystem partners to launch scenario-based renovation solutions for balconies, kitchens, and bathrooms. The one-stop renovation can be completed within a very short period (usually 1-7 days).

On July 22, 2020, Haier Internet of Food’s 1st Kitchen Renewal Campaign was launched at the Haier IoF No.001 Experience Center in Chongqing. At the ceremony, Haier Internet of Food (IoF) teamed up with leading companies and senior designers in the fields of home furnishing, home improvement, and cabinets, including Easyhome, Chitian and Feiyu, to form a kitchen renewal alliance that offers a one-stop kitchen renewal solution covering disassembly, delivery, and installation services and a “3-Day Kitchen Renewal” campaign. The one-stop professional service includes complimentary design, safe power tests, installation and commissioning, cleaning, and follow-up visits. Users can also supervise the renovation works through the Haier Smart Home APP to ensure that the process is transparent and all their demands are met.

In addition to kitchen renewal solutions, Haier IoF can also provide users with a set of food-related ecosystem solutions to help them buy, clean and cook foods, disinfect bowls and chopsticks and dispose of waste. This is enabled by Haier IoF’s ability to pull together resources from a global food and cuisine ecosystem and to setup a smart kitchen ecosystem that covers nearly 1,000 partners in 12 categories such as homeware, food, health, logistics, and entertainment. The ecosystem can hence provide users with kitchen renewal and customized kitchen solutions at the fastest speed and with the best experience.

In the manufacturing and R&D fields, PTC keeps delivering solutions and services throughout complete product life cycle to tap global customers since its establishment in 1985, helping customers develop excellent products ahead of their competitors and launch these products quickly in the market. PTC is widely regarded as the most influential software company in the CAD/CAE/CAM/PLM fields.

PTC and Microsoft HoloLens have jointly created the "HoloLens 2" industrial mixed reality (MR) technology to help Howden address traditional pain points in equipment maintenance and production process optimization. PTC leveraged its leading AR technology, Vuforia Studio, and ThingWorx Industrial IoT platform to help Howden create immersive HoloLens interactions quickly and efficiently. Besides, by incorporating real-time and historic IoT data from PTC’s ThingWorx Industrial IoT platform and Microsoft Azure (cloud service and IoT-related solution platform), HoloLens 2 can synchronize the data between industrial equipment and mixed reality, and provide Howden workers with the enhanced view of the equipment’s operating conditions and performance.

As such, HoloLens 2 ensures that the equipment is always stable and working at high efficiency, and allows non-professionals to quickly get started on equipment maintenance and repair. Through co-creation, PTC and Microsoft help customers solve industry pain points and drive the use of mixed reality in creating transformative experience in industrial field.65 64
From the perspective of ecosystem partners, IoT ecosystem brands need to meet three criteria: keep an open, diverse, and dynamic ecosystem; enable sharing, collaboration and co-creation; and achieve value-added sharing and win-win symbiosis.

First, keep an open, diverse, and dynamic ecosystem.

Second, enable sharing, collaboration and co-creation.

Third, achieve value-added sharing and win-win symbiosis.

Finally, IoT ecosystem brands must ensure that all partners in the ecosystem can share value after they co-create the value. Ecosystem partners should not be in a zero-sum game but strive to achieve a win-win symbiosis. It is only through this approach that all partners in the ecosystem will always be motivated to continuously participate in the co-creation. Here we introduce two concepts, "ecosystem revenue" and "value-added sharing", to explain this criterion.
IoT ecosystem brand and its partners can both achieve growth in ecosystem revenue.

Ecosystem revenue refers to the economic revenue which is generated by ecosystem participants through interaction with users and is beyond the original businesses scope of ecosystem organizer. Ecosystem revenue can be understood as "new value generated based on the ecosystem model". For example, by interacting with users within the ecosystem, ecosystem partners can constantly work out new solutions. Partners in the ecosystem can also jointly launch new solutions through cross-sector co-creation. The new revenue generated by these new solutions is called "ecosystem revenue". A win-win and symbiotic ecosystem means that all partners in the ecosystem can achieve ecosystem revenue growth.

IoT ecosystem brand and its partners can both share added value derived in the ecosystem.

Value-added sharing means that all ecosystem participants can share the extra revenue generated after they join the ecosystem and can thus sell at higher prices or with more volumes. Within the IoT ecosystem, partners co-create a bigger cake, and at the same time, share the "bigger part of the cake" according to their actual contributions. Achieving mutual benefit and "win-win" lie at the core of the value-added sharing. It is only by ensuring that all participants in the ecosystem can share benefits on a level playing field that the ecosystem can achieve healthy and sustainable development.

With a focus on users' laundry experiences, Haier Internet of Clothing (IoC) has introduced ecosystem partners such as washing and dyeing solution providers and equipment manufacturers and developed "Mr. Cleare" brand, providing users with a one-stop shopping of laundry, clothing care, clothing customization and washing products within the ecosystem.

As for the care of luxury leather products, Haier IoC has teamed up with Italian professional leather care brand UNITERS to provide users with leather care services and sell luxury leather care products. Meanwhile, in response to Chinese users' needs on leather care, Haier has cooperated with UTITERS to set up the UNITERS laboratory, where over 99% of leather care issues can be solved. This collaboration helped UNITERS enter China market and boosted its annual sales by 10 million yuan.

To help upgrade laundry experiences in outlets industrywide, Haier IoC has collaborated with Spanish dry-cleaning machine equipment manufacturer Unisec to develop small dry-cleaning machines and leverage the Mr. Cleare's touchpoints to put them into use in clothing, home textile, washing and dyeing outlets. On one hand, it has resulted in a 20% traffic increase at these outlets. On the other hand, it brought an over 20% revenue increase for Unisec.
Based on the brand purpose perspective, the user perspective and the partner perspective, we can define the **IoT ecosystem brand as**:

**A new brand paradigm that encourages the co-creation among brands, users and partners to provide unbounded and continuously iterative integrated value experiences, thus ultimately creating life-long users, achieving win-win symbiosis among ecosystem partners, and creating and passing on greater value for society as a whole.**

This new brand paradigm will fundamentally change people’s perception of brands, and will also help brands establish unique advantages that their competitors are unlikely to obtain anytime soon in the IoT era. According to the BrandZ™ Top 100 Most Valuable Global Brands List, the average compound annual growth rate (2015-2020) of brand value for brands under this new paradigm was 18%. In contrast, the growth rate of other brands was a mere 6%.

In the near future, any brand that hopes to lead in the IoT era must explore the path towards becoming an ecosystem brand. And the ecosystem brand will be the most forward-looking and prominent mode amid brand evolution in the IoT economic system.
The management of brands has always been a complex endeavor. Even individually, the brand is a multi-faceted asset (e.g. recall, recognition, strength and patterns of associations) that requires thoughtful arrangement of its components in order to achieve specific business goals. At a higher level of complexity, multi-brand firms combine a variety of these assets in complementary portfolios that better cover distinctive and expanding marketplaces. However, the evolution of the business landscape and the introduction of dynamic competitive ecosystems (like IoT) requires a novel way to organize and capture the interactive value creation of ecosystem brands. Like its predecessors, an ecosystem brand is still a complex market-based asset, but it is different in that a part of its functionality resides entirely in the integration and interaction with other brands that form the ecosystem, and who come together to create the overall user experience.

In order to account for the complex functionality of brands as well as for the dynamic, relational, and integrative aspects of an IoT ecosystem, we rely on existing marketing, economic, and econometric literature on relational systems in order to derive a novel theoretical model of ecosystem brand functionality. From this broad definitional model, we can then go on to create precise definitions, measurements, and evaluations for the relative performance of brands within ecosystems but also for entire ecosystems themselves.

We start from the simple statement we shared previously: the ecosystem brand is a complex market-based asset, but part of its functionality resides entirely in the integration and interaction with other brands that form the ecosystem. In order to keep our initial statements general, we use the economic concept of utility to describe the value or worth consequence of brand/ecosystem activities. Furthermore, we capture the relational integration and interaction aspect of an ecosystem within the idea of network externalities; a concept that explains the value added or subtracted by virtue of being connected with other users or members of a system. Coarsely, that set the utility of an ecosystem brand, as a function (of some form) of its actions and the network externality (hopefully positive) of being embedded in the ecosystem itself. Thus:

\[
\text{Ecosystem Brand Utility} = f(\text{Core Brand Performance, Network Externalities})
\]

Or, the equivalent: \( U_{ei} = U_i + \theta_e U_e \)

if we believe the overall utility to the brand \( (U_{ei}) \) is given by its own performance utility \( (U_i) \) plus the value derived from the ecosystem membership \( (U_e) \), proportional to the strength, commitment, or reliance on that membership \( (\theta_e) \).
Of course, as mentioned previously, brand performance is complex, and so is the organization of members within an ecosystem. We capture these in augmenting the previous formula, importantly assuming that the complex ecosystem is made up of at least two important regions:

1. The microecosystem, which represents the direct brands and firms interacting with our brand;

2. The grand ecosystem, which captures the more distant systematic benefits of membership as well as the arrangement of separate and interacting microecosystems.

The resulting final model is then:

\[ U_{ie} = P - \sigma d_{ij} + \delta M \cdot \theta_{MC_e} + \delta G \cdot \theta_{GCE-e} - f_e \]

where \( P - \sigma d_{ij} \) is the distance \((d_{ij})\) of consumer’s ideal preferences from the firm’s position \( P \), and \( \sigma \) is the coefficient capturing the consumer-specific value associated with that change. Noting that \( \delta M \cdot \theta_{MC_e} \) represents the organization \((\delta M)\), and relevance \((\theta_M)\) the microecosystem \((C_e)\) region; and \( \delta G \cdot \theta_{GCE-e} \) offers the same for the grand ecosystem, and its organization surrounding the microecosystem \((C_{e\rightarrow})\). Also taking into account coordination costs \((f_e)\).

The end result offers precise control and understanding over the various dimensions of brands as well as their placement in regions and configurations of an ecosystem structure that results in differential brand performance. From this foundational model, we can then build empirical model to identify the presence, value and overall performance of an ecosystem brand. The criteria we have articulated in the previous chapter will be the key input measurements in measuring the ecosystem brand performance.
The emergence of IoT ecosystem brand will have a fundamental impact on companies both internally and externally. Internally, developing IoT ecosystem brand requires companies to rebuild their organizational forms. Companies will need to change their employee role, organizational structure, management mode and incentive mechanism to enhance their competency to capture market opportunities and improve their responsiveness. Externally, IoT ecosystem brand will accelerate cross-industry innovation and resource sharing, contribute to building an equal and inclusive society, and boost companies' social contributions and accountability to unprecedented levels.
3.1 Organizational Reinvention of IoT Ecosystem Brand

There are abundant opportunities and rapid changes in the IoT era

The IoT will lead to a major transformation of the traditional physical world. This transformation will involve a complete upgrade of industries and categories, providing a multitude of industry opportunities. At the same time, as the IoT can effectively capture various personalized needs, the opportunities presented will be diversified and highly dispersed.

What’s also important is that changes of these opportunities will accelerate as technologies iterate and user needs evolve rapidly. On one hand, as Ray Kurzweil mentioned in his book *The Singularity Is Near*, technological evolution abides by the law of accelerating returns, new technological breakthroughs have been gearing up. On the other hand, the accelerated sharing and dissemination of information led to quick changes of user needs, and these ever-changing needs can be captured in real time in the IoT era.

Companies need to be able to keenly identify market opportunities and react quickly

Based on the characteristics of opportunities in the IoT era, companies need to be able to keenly identify market opportunities and react more quickly.

1) If companies want to keep a sharp eye out for the market, they cannot just rely on senior executives or any single department to identify market opportunities, but must enable everyone to become a touchpoint. In other words, a company needs to turn everyone into a “sensor” that can proactively identify market opportunities and meet user needs.

2) If companies want to have agility, they must shorten decision-making chains as much as possible and eliminate original internal organizational barriers, so that they can act quickly after discovering opportunities and transform themselves into “agile enterprises”.
Four cornerstones of organizational reinvention

For most companies, organizational reinvention is needed to achieve the two goals above. Specifically, companies need to wrap up transformation in the following four aspects:

<table>
<thead>
<tr>
<th>Standard</th>
<th>From...</th>
<th>To...</th>
<th>The standard definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employee Role</td>
<td>Worker</td>
<td>Business partner</td>
<td>The relationship between company and its employees should shift from &quot;employment&quot; to &quot;cooperation&quot;. Becoming a &quot;business partner&quot; will motivate employees to be active entrepreneurs who take the initiative to create value for users, company and themselves</td>
</tr>
<tr>
<td>Organizational Structure</td>
<td>Traditional hierarchical structure composed of various functional departments and tiers</td>
<td>Network structure composed of various small business project teams</td>
<td>Companies break down the division of functions and levels and form flexible and agile small business project teams based on user needs. A variety of these teams work together to create a network that the company leverages to access the market</td>
</tr>
<tr>
<td>Management Mode</td>
<td>Control</td>
<td>Empower</td>
<td>Companies shift from the &quot;management and control&quot; mode to the &quot;empowerment and authorization&quot; mode and assume an &quot;incubator&quot; role. Empowerment is mainly reflected in the following aspects:</td>
</tr>
<tr>
<td>Incentive Mechanism</td>
<td>Pay employees for the work they have done</td>
<td>Co-create and share the benefits</td>
<td>Companies reward employees by allowing them to fully share the business value they create as business partners, which means &quot;the higher value they create for users, the more benefits they can get&quot;</td>
</tr>
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</table>

CHAPTER THREE • The Impact of IoT Ecosystem Brand
Transform Employee Role:

**From "worker" to "business partner"**

To enable employees to proactively find market opportunities, companies should first change employee role, which means the relationship between company and its employees should shift from "employment" to "cooperation", thus making employees "partners" of the company.

As the world went through industrial and information revolutions, capital has weakened ability in creating value. Nowadays, it’s much more difficult to maintain a business moat solely built on large-scale asset or cost advantages, and “people” are playing an increasingly important role in companies’ value creation. Whether it is technological innovation or business model innovation, people are the core driver of value creation. Therefore, a company must change the employee role to fully inspire them to be proactive, accountable, and loyal in value creation, rather than to allow them to see themselves as mere workers. Becoming a "business partner" will motivate employees to be active entrepreneurs who take the initiative to create value for users, the company and themselves.
Transform Organizational Structure:

**From** "traditional hierarchical structure composed of various functional departments and tiers" **to** "network structure composed of various small business project teams"

Compared with technology and business model, organizational structure usually evolved a bit slower. Nowadays, many companies still function based on the traditional hierarchical structure, but this system, which features professional division of labor and complicated internal approval processes, is obviously unsuited for the IoT era.

The traditional, pyramid-shaped hierarchical structure has multiple layers of authorization which prevents companies from making quick decisions. This structure also has the tendency to induce the silo effect, which occurs when functional departments are isolated within an organization, making it hard to foster cross-functional collaboration. Furthermore, this hierarchical structure often places too much emphasis on standardization and consistency, and tends to adopt a “one-size-fits-all” management approach, which fails to fully consider the actual needs of different business units.

However, user needs in the IoT era change rapidly and companies must be able to respond quickly and flexibly to the real situations by immediately identifying market opportunities, launching new products, and creating immediate advantages. This requires companies to break down the division of functions and levels and form flexible and agile business project teams to directly face the markets. A business project team is an individual value creation unit that can act on its own. The team brings together various internal/external roles and resources related to product development and commercialization, forming an "end-to-end" closed loop, tearing down the barriers between traditional functions, and ensuring the efficient and smooth collaboration among different roles. Unlike positions and responsibilities under the traditional hierarchical system, the “roles” in the business project team can be adjusted any time to respond to different situations as the tasks assigned to team members will be altered when the team’s needs change. Meanwhile, the business project team may not exist forever, and should be flexibly organized or disbanded based on the constantly changing user needs. These business project teams are just like plug-in components within an organization as they can function on a “plug and play” basis. A variety of these small business project teams work together to create a network that the company leverages to access the market, thus changing the organizational structure into a networked format.
We should be aware that when setting up business project teams, employees should be allowed to choose or organize the teams on their own. “Interest” and “self-realization” drive individuals to unleash their potential. When people can choose business projects that they are passionate or upbeat about, they are more likely to be self-driven and devote themselves to value creation and value transmission, thus unleashing their creativity to explore unlimited possibilities.

**Transform Organizational Structure**

**From...**

Traditional hierarchical structure composed of various functional departments and tiers

- Leadership
- Hierarchical structure
- Department A
- Department B

**To...**

Network structure composed of various small business project teams

- Business project teams are formed according to user needs/market opportunities
- A business project team which brings various roles together is an individual value creation unit that can act on its own

**Transform Management Mode:**

**From "control" to "empower"**

To help business project teams take the initiative to act quickly after identifying opportunities, companies should shift from the “management and control” mode, which is typical of the traditional hierarchical system, to the “empowerment and authorization” mode. Companies need to assume an “incubator” role by providing all necessary resources and authority to assist the project teams to grow quickly. Empowerment refers to the following two points:
a) Granting business project teams autonomy and power to make key decisions related to HR, finance, and business operation

Companies need to delegate the power for talent management, financial management and business decision-making to business project teams. Since the business project teams are responsible for operational results, they should be granted a corresponding level of autonomy and power. Providing teams with full autonomy ensures that they can mobilize resources to seize opportunities in a timely manner based on their own judgement. This, however, does not mean that the company should adopt a completely hands-off approach – As an incubator, the company should still provide corresponding risk control mechanisms that can dynamically identify the gap between a business project team’s actual operating results and the pre-set targets. If the gap is found too large, the business project team needs to adjust its operation plan. If the new plan is still unable to meet user needs, the team will be reshuffled or disbanded.

b) Build a strong mid office to provide support to business project teams on data, technology, and other general organizational functions

On top of fully empowering front-end business project teams, companies also need to build a strong mid office to ensure that the teams can quickly obtain sufficient resources when they need. The mid office needs to possess the following functions. First, the mid office needs to integrate internal resources to facilitate sharing. For example, the mid office should leverage data resources accumulated by various teams to form a shared pool of data assets in multiple fields. Second, the mid office should create standardized and reproducible modular tools based on the common needs of different teams, thus providing the front-end teams with a toolkit of diverse “building blocks” that can be quickly put into use. Third, the mid office should help front-end teams to obtain external resources quickly and at a low cost. By aggregating the needs of different teams, the mid office can introduce external resources at corporate level to lower costs. All in all, the mid office needs to form a powerful resource pool and toolkit through resource integration and capability building so that front-end teams can be more flexible and agile in capturing market opportunities.

Transform Management Mode

Companies should delegate the power of talent management, financial management and business decision-making to business project teams.

The mid office empowers business project teams by providing integrated internal resources and modular tools as well as leveraging external resources at a low cost.
Transform Incentive Mechanism:

From "pay employees for the work they have done" to "co-create and share the benefits"

Finally, organizational reinvention also means that companies need to transform the incentive mechanism from “paying employees for the work they have done” to "co-creating and sharing the benefits", thus rewarding employees by allowing them to fully share the business value they create as business partners.

In the traditional hierarchical organizations, most employees have little contact with users and markets. As such, companies cannot accurately measure the business value created by these employees and can only pay them based on their position, ability, or seniority. Even if performance-related indicators are used as part of KPIs to calculate bonus or equity, they usually reflect the performance of the entire company or a business division. Thus, these indicators lack sufficient sensitivity to accurately reflect the value employees create for users and what they exactly contribute to business performance. Another problem with the traditional incentive mechanism is that employees still believe they serve the company rather than the user, who is the real source of value. Similarly, companies still regard employees as costs.

In contrast, in the network structure composed of small business project teams, each team directly deals with the market and creates and delivers value to users. Therefore, the business value it generates can be accurately measured. If a company hopes to fully motivate these teams, employees should be regarded as business partners who co-create value and share the risks and benefits with the company. The incentive mechanism is designed with a core concept to directly link the benefit each team could obtain to what it creates for users, which means “the higher value it creates for users, the more benefits it can get”. In such incentive plan, employees will be clearly aware that users are the ones who pay their salaries, and thus are inclined to keep a close eye on the ever-changing markets and user needs as to create more value. This in turn allows employees to earn more, thus realizing a win-win closed loop.
Haier’s innovation in organization management is a great example of how to deliver the above-mentioned organizational reinvention.

Faced with multiple opportunities in the IoT era, Haier has upgraded its pioneering “Rendanheyi” model and created a new paradigm of organization management called “Ecosystem Micro-community (EMC)”, which is designed to better provide one-stop holistic solutions to cater to users’ various needs in a specific scenario.
"EMC" refers to a cluster of microenterprises (MEs). It's a self-adaptive nonlinear network. As the basic unit of the EMC, MEs are teams that have the autonomy to make decisions, hire talent and distribute payment after Haier abolished the traditional hierarchical structure. The EMC, which has developed based on MEs, can better connect internal and external resources to meet user needs and enable experience iterations under different scenarios. EMCs are divided into "experience EMC" and "solution EMC" based on the roles they play. The experience EMC is responsible for "delivering value" by directly interacting with the user community through touchpoint network to understand users' demands for upgrading experiences. The solution EMC is responsible for "creating value" by collaborating with various resource providers to continuously create and iterate scenario-based solutions to meet user needs.

**Transform employee role: From "worker" to "business partner" & Transform organizational structure: From "traditional hierarchical structure composed of various functional departments and tiers" to "network structure composed of various small business project teams"**

The EMC consists of highly proactive and flexible teams that are "self-organized, self-driven, self-value generating, and self-evolving".

Self-organized: The "experience EMC" and "solution EMC" can work out their own action schedules. As the user experience iterates and user needs become more segmented, EMCs can split the teams accordingly to address user needs in a more precise way.

Self-driven: The EMC constantly improves user experience with an aim to bring the best user experience. With an open system, the EMC attracts resource providers that can create high added value, thus continuously driving itself to grow and to work out high-quality solutions.

Self-value generating: Through creating better experience value for users, the EMC will be able to share more added value derived in the ecosystem.

Self-evolving: Driven by user needs, the EMC introduces a stream of external resource providers to offer resources and services with better quality. As the ecosystem evolves, new products/services/solutions will continue to emerge, so as to support the long-lasting growth of the entire system.

**Transform management mode: From "control" to "empower"**

Haier’s "Rendanheyi" model has changed the management mode from "management and control" to "authorization and empowerment" in two key aspects.

First, the power to make business decisions, hire talent and distribute payment is delegated to the EMC to enable it to grow and to respond and iterate quickly based on user needs.

Second, Haier adopts the nonlinear system of "3 Zeros", referring to a shared supporting platform that feature "zero distance to users, zero signature in process and zero delay in experience". Haier integrates the existing functional
departments to form a platform to provide shared financial services, human resource, legal and IT services for EMCs. This organizational change eliminates the silos that separate traditional functional departments, and forms a nonlinear organization based on shared platforms like software systems and operating platforms, thus allowing EMCs to operate more efficiently and smoothly.

**Transform incentive mechanism: From "pay employees for the work they have done" to "co-create and share the benefits"**

Under Haier’s "Rendanheyi" model, employees are evaluated and paid by users rather than evaluated by their supervisors and paid by the company.

The mechanism that drives the EMC is centered on the principles of “paid by users” and “value-added sharing”. The value EMCs create for users is associated with the value these EMCs can share in the ecosystem. The more value EMCs create for users, the more benefits they can get. Driven by the new needs of users, EMCs can propel organizations to evolve, while actively collaborating with multiple resource providers to achieve win-win for all stakeholders.

For other companies that are committed to building IoT ecosystem brands, the above approaches for organizational reinvention will help them successfully capture market opportunities and realize immense economic potential.
On top of reinventing organization, IoT ecosystem brand, as an inclusive brand paradigm, will have a long-term, far-reaching impact on the broader society. Therefore, we will need to answer the most fundamental questions: What value will IoT ecosystem brands bring to the society? What impact will they have on the society? In other words, what social responsibilities could IoT ecosystem brands take? What kind of society will they build for us?

The social responsibilities of IoT ecosystem brands can be summarized as "avoiding negative externalities" and "strengthening positive externalities".

1. Avoid negative externalities

Avoiding negative externalities will make most of us think of Google's famous creed - "Don't be evil", which means that a company should do no harm to others or society due to its business. For brands, choosing what not to do is sometimes more important than choosing what to do. As IoT ecosystem brands have wide coverage and can leverage a wealth of resources, any action they take could have a broad impact. As such, they should proactively avoid casting negative impact on society in the midst of doing business. For example, IoT ecosystem brands must ensure data privacy and security in their ecosystem and avoid the unethical use of data. IoT ecosystem brands and their partners must abide by laws and regulations on labor rights, environmental protection, and business ethics, thus driving the entire ecosystem to develop in line with ESG principles. All these will be major challenges that IoT ecosystem brands face in the future.

2. Strengthen positive externalities

Meanwhile, as the leading brand paradigm in the IoT era, "big brands need to think big". This means that IoT ecosystem brands need to undertake more social responsibility and strive to create more positive externalities. For example, IoT ecosystem brands can use their core and unique capabilities to create social value. Based on what we've discussed previously, we could summarize the three core capabilities of IoT ecosystem brands – "connecting, empowering and sharing". By leveraging these capabilities, IoT ecosystem brands are expected to bring significant changes to society.

a) Connect a myriad of industries, eliminate industry barriers, and foster cross-sector innovation and integration for society

A major characteristic of IoT ecosystem brands is that they can attract a raft of industries to join the open ecosystem and conduct cross-sector co-creation, thus providing them with the possibility of solving social problems with unprecedentedly creative approaches. For example, if dairy companies, eyewear manufacturers, sports fitness APPs, sports apparel/equipment makers, and insurers in the ecosystem can join hands and brainstorm, they might be able to create innovative solutions to help address some issues in children's health and wellness field. Different industries can work together to break the established rules or traditional models and pave the way for new solutions to address social problems.
b) Empower a myriad of industries and support mass entrepreneurship to create a more equal and inclusive world

As another important capability of IoT ecosystem brands, "empowerment" helps address the uneven development among industries and companies, and brings more equal opportunities to the world.

Different industries: Development among industries will be more balanced, and dividends of growth in the era can be enjoyed more equally

In the internet era, the concept - "Internet Plus" has already been promoted. But what "Internet Plus" offered was mainly a channel for information distribution, which has changed the sales modes to end users in traditional industries. But it has yet to spur the upgrading and transformation of production process in traditional industries such as manufacturing and agriculture. A majority of dividends of growth in the internet era are shared by just a few industries such as e-commerce and social media. In contrast, IoT ecosystem brands enable a variety of industries, including many traditional industries, to be truly integrated into "smart economy", and help them achieve a comprehensive industrial upgrade along their entire value chain of "production to circulation". By this way, IoT ecosystem brands allow all industries and businesses to equally enjoy the dividends of growth in the new era.

Large vs. small companies: Small companies can compete with large companies on a level playing field

Apart from enabling balanced development across industries, IoT ecosystem brands can also empower small companies to better compete with large companies on a level playing field. Many partners of IoT ecosystem brands are small companies. By sharing resources and platforms, IoT ecosystem brands enable small companies to enjoy the inclusive benefits in technology, finance, and logistics as well, lower the threshold for them to access the "smart economy" and reduce their investment and operating costs. Small companies can thus grow rapidly, unleash their business potential, and share the dividends of the IoT era with large enterprises fairly.

c) Transform the "sharing spirit" from an idea to a guiding principle for business and daily life, and create a "resource-friendly" society where resources are used more effectively

As mentioned in the previous section - "'The right to use' outweighs 'the right to possess'" - IoT has created technical conditions for the explosive growth of the sharing economy. Similarly, IoT ecosystem brands provide platforms for the creation of various innovative models of the sharing economy.

IoT ecosystem brands could attract many partners and users to their ecosystems, while leveraging new technologies to track the status of various production resources or consumption/durable goods their partners or users possess in real time and at a low cost. Whether they are idle daily necessities, production lines, labor, or reusable and sharable data, supply and demand sides in these fields can be quickly matched in the ecosystem. IoT ecosystem brands could thus foster a variety of innovative business models for the sharing economy, allowing idle resources and excess capacity to return in circulation. As more sharing-economy models take root in the ecosystem, IoT ecosystem brands will deeply embed the "sharing spirit" in people's minds and create a society where resources are used more effectively used.

As the society moves forward, IoT ecosystem brands should be more proactive in assuming a wider range of social responsibilities and create long-term value for society together with ecosystem partners. From "not being evil" to creating a more "equal and inclusive society with cross-sector co-creation and full-scale resource sharing", IoT ecosystem brands are weaving a network of business ethics and meaningful brand purpose, and allowing us to expect more for this rising beautiful new world.
IoT ecosystem brand has created an inclusive and long-lasting new business mode and a new brand paradigm for sustainable development.
A new wave of revolution in information technology, led by the IoT, is sweeping the world. As a highly versatile technology similar to the steam engine and electricity, the IoT not only triggers a surge in productivity in all walks of life, but also leads to the formation of IoT ecosystem brand, a new brand paradigm that redefines the relationships between companies and users, companies and partners, and companies and society.

This new brand paradigm goes beyond the single "user perspective" under the traditional brand definition, and redefines brands from a "user + partner + society" perspective in a bid to encourage brands to meet the needs of different stakeholders in the ecosystem. For users, IoT ecosystem brands provide them with an unbounded, personalized, and iterative holistic value experience. For partners, IoT ecosystem brands create an open, diverse and dynamic ecosystem which enables sharing and collaboration, and allows IoT ecosystem brand and its partners to co-create solutions and achieve value-added sharing and win-win symbiosis. For society, IoT ecosystem brands actively assume more social responsibilities on top of creating economic benefits with brand purpose reflecting the key priorities in the society. By the way, IoT ecosystem brands kick off a fundamental revolution after a century of brand development, leading to a gradually unfolding beautiful new world.

For an IoT ecosystem brand, the trump card to open up the beautiful new world is to always have "maximizing the value of people" at heart. The "people" here has multiple meanings – it does not only stand for users or partners, but also refers to employees and the wider public. By centering on the value of people, IoT ecosystem brands help unleash the greatest potential of all parties by encouraging users, partners, employees and the wider public to interact and co-create, achieving high-quality economic growth and unprecedented social value. Participating in the entire process of "creating value, transferring value and sharing value", all parties in the ecosystem will find fulfilment and therefore are willing to stay in the ecosystem, grow with the ecosystem, and continuously create new value for the ecosystem. "Enterprises will die, but ecosystem will not". By maximizing the value of people, IoT ecosystem brand has created an inclusive and long-lasting new business mode and also a new brand paradigm for sustainable development.

In a world that increasingly relies on IoT, companies and countries that build the new paradigm of ecosystem brands will spur social and economic potential beyond imagination and successfully seize opportunities to assume leading positions in this historical transformation. We hope that this white paper will provide the necessary guidance to help facilitate the transformation of brands that are eager to stand at the forefront in the IoT era. As new trends will constantly emerge in the new era, brands must always evolve. We expect more companies and researchers to work with us, jointly explore and put into practice the paradigm of IoT ecosystem brands, to maximize the economic potential of this new brand paradigm and to quicken the shift towards an "equal and inclusive society with effective cross-sector co-creation and resources sharing".
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Team

Advisory Committee

Doreen Wang,
Kantar China CEO &
Global Head of BrandZ™

Xiaobin Xu,
Managing Partner,
Consulting by Kantar,
Greater China

Ruimin Zhang,
Chairman of the Board &
CEO of Haier Group

Yunjie Zhou,
President of Haier Group

Research Team -
Kantar

Han Ye,
Director,
Consulting by Kantar

Boyang Xu,
Senior Consultant,
Consulting by Kantar

Qinghua Cheng,
Associate Director,
Consulting by Kantar

Xiaou Li,
Associate Director,
Consulting by Kantar

Menglin Xu,
Associate Director,
Consulting by Kantar

Shijie Lai,
Consultant,
Consulting by Kantar

Jia Liu,
Consultant,
Consulting by Kantar

Ruinian Zhao,
Analyst,
Consulting by Kantar

Research Team -
Haier Group

Bo Zhan,
Vice President & COO
of Haier Group

Xinzhili Shao,
Vice President & CFO
of Haier Group

Meiyi Wang,
General Manager of
Brand Management Department
of Haier Group

Xinwei Teng,
Deputy General Manager of
Brand Management Department
of Haier Group

Ian Wang,
Senior Brand Manager
of Haier Group

Yunxia Che,
Brand Manager
of Haier Group

Xiang Ao,
Director of Financial Innovation
of Haier Group

Wei Wang,
Director of Digital
Transformation Empowerment
of Haier Group

Research Team -
Said Business School

Andrew Stephen,
Associate Dean of Research &
L'Oréal Professor of Marketing

Felipe Thomaz,
Associate Professor of Marketing &
Research Faculty in the Future of Marketing Initiative

Design -
Kantar

Bobbie Bao,
Creative Consultant,
Consulting by Kantar
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(The list above is in no particular order)
Kantar, Saïd Business School and Haier Group Introduction

Kantar

Kantar is the world’s leading evidence-based insights and consulting company. We have a complete, unique and rounded understanding of how people think, feel and act; globally and locally in over 90 markets. By combining the deep expertise of our people, our data resources and benchmarks, our innovative analytics and technology, we help our clients understand people and inspire growth.

Saïd Business School

Saïd Business School blends the best of new and old. We are a vibrant and innovative business school, but yet deeply embedded in an 800-year-old world-class university. We create programmes and ideas that have global impact. We educate people for successful business careers, and as a community seek to tackle world-scale problems. We deliver cutting-edge programmes, including the highly regarded MBA, Executive MBA, a number of specialist MScs, a portfolio of custom and open programmes, and accredited diplomas for executives, and we undertake ground-breaking research that transform individuals, organisations, business practice, and society. We are an international and outward looking School with our programme participants coming from more than 50 countries. We seek to be a world-class business school community, embedded in a world-class University, tackling world-scale problems.

Andrew Stephen

Professor Andrew Stephen is a leading academic voice on the technology-centric future of the marketing, media, and advertising industries. He is currently the Associate Dean of Research and L’Oréal Professor of Marketing at Saïd Business School, University of Oxford. He is also the founding director of the Oxford Future of Marketing Initiative, which is a collaboration between academic researchers and some of the world’s leading brands, agencies and technology companies aimed at shaping the future of the marketing discipline through rigorous research and practical evidence-based thought leadership. His research interests lie at the intersections of marketing, consumer psychology, and technology, and he was recently recognized as one of the top academic researchers in marketing in the world (and #1 in the UK) by the American Marketing Association.

Felipe Thomaz

Felipe Thomaz is an Associate Professor of Marketing, and Research Faculty in the Future of Marketing Initiative. He is an expert in marketing strategy and digital markets, with particular focus on firm performance. His research uses graph theory/social network analysis in the development of novel managerial insights and tools for the organization of digital markets. Felipe has worked with a number of leading global companies, as well as governments and non-profits. He has presented work and served as an expert at the United Nations General Assembly and serves as advisor to the Oxford Martin School program against Illicit Wildlife Trade, the Oxford Internet Institute’s Technology and Elections Commission, as well as the Oxford Initiative on AI and Sustainability Development Goals. He is an inventor responsible for multiple University of Oxford innovations, and co-founder of Augmented Intelligence Labs, a University-partner company that provides bleeding-edge decision support, managerial intelligence tools, and Martech Engines that power global analytics tools.
Haier Group

Established in 1984, Haier Group is a world-leading provider of solutions to better life. Mr. Ruimin Zhang, Chairman of the Board and CEO of Haier Group, systematically illustrated the Rendanheyi Model in 2005, whose contemporary features, universality and social characteristics have achieved trans-industry and trans-culture fusion and replication.

Focusing on user experience, Haier has grown from the once collectively owned small factory on the verge of bankruptcy into an ecosystem that leads the IoT era. As the world’s first and only IoT ecosystem brand, Haier has been included on the list of BrandZ™ Top 100 Most Valuable Global Brands for two consecutive years. Haier has topped Global Major Appliances Brand Rankings by Euromonitor International for 11 consecutive years. To date, Haier has successfully incubated four listed companies, it’s subsidiary Haier Smart Home is among the list of Global 500 of Fortune.

Upholding the vision of “creating new engines to growth in the era of IoT with Rendanheyi Model”, Haier is committed to working with its world-class ecosystem partners to continuously build scenario brand and ecosystem brand, and to set up IoT ecosystems in clothing, food, accommodation, travel, health, elderly care, biomedicine and education, and to tailor personalized smart life for users around the globe.
Contact us

For further information about the whitepaper, please contact:

Martin Guo,
Editor-in-Chief,
Kantar China

Email: martin.guo@kantar.com
Contact Number: 8621 - 2287 0046

Ian Wong,
Senior Brand Manager,
Haier Group

Email: wangedhao@haier.com
Contact Number: 86 - 138 5412 8092

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